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SEQUENCING LISTING

<110> KYOWA HAKKO KOGYO CO., LTD

<111> THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INTO CARDIOMYOCYTES

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<151> 1999-12-28

<150> PCT-JP00-01148

<151> 2000-02-28

<150> PCT-JP00-07741

<151> 2000-11-02

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<170> PatentIn Ver.2.0

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Lys Gln Ala Gly Arg Gly Gly Val Cys Gly Arg Gly Arg Gly Arg
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Gly Arg
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Pro Pro Ser Gly Gly Ser Gly Leu Gly Asp Gly Gly Cys Gly
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Gly Gly Gly Ser Gly Gly Gly Ala Pro Arg Arg Glu Pro Val Pro
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Phe Pro Ser Gly Ser Ala Gly Pro Gly Pro Arg Gly Pro Arg Ala Thr
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Glu Ser Gly Lys Arg Met Asp Cys Pro Ala Leu Pro Pro Gly Trp Lys
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Lys Glu Glu Val Ile Arg Lys Ser Gly Leu Ser Ala Gly Lys Ser Asp
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Thr Lys Val Thr Asn His Pro Ser Asn Lys Val Lys Ser Asp Pro Gln
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Arg Met Asn Glu Gln Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln
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Gly Leu Ser Ala Ser Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu
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Leu Pro Lys Gly Leu Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr
305 310 315 320
Leu Leu Ser Ala Val Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile
325 330 335

Thr Gly Gln Val Ser Ala Ala Val Glu Lys Asn Pro Ala Val Trp Leu
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355 360 365
Ile Arg Lys Gln Glu Glu Arg Val Gln Gln Val Arg Lys Lys Leu Glu
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Gly Glu Ser Ala Ala Gly Ser Gly Ala Gly Gly Asp Ser Ala Ile
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gag cag ggg ggc cag ggc agc gcg ctc gcc ecg tcc ccg gtg agc ggc 144
Glu Gln Gly Gly Gln Gly Ser Ala Leu Ala Pro Ser Pro Val Ser Gly
35 40 45
gtg cgc agg gaa ggc gct cgg ggc ggc cgt ggc cgg ggg cgg tgg 192
Val Arg Arg Glu Gly Ala Arg Gly Gly Arg Gly Arg Gly Arg Trp
50 55 60
aag cag gcg ggc cgg ggc ggc gtc tgt ggc cgt ggc cgg ggc cgg 240
Lys Gln Ala Gly Arg Gly Gly Val Cys Gly Arg Gly Arg Gly Arg
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ggc cgt ggc cgg gga cgg gga cgg ggc cgg ggc cgg ggc cgt 288
Gly Arg
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ccc ccg agt ggc ggc agc ggc ctt ggc ggc gac ggc ggc ggc tgc ggc	336
Pro Pro Ser Gly Gly Ser Gly Leu Gly Gly Asp Gly Gly Cys Gly	
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Val Tyr Tyr Phe Ser Pro Ser Gly Lys Phe Arg Ser Lys Pro Gln	
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aca aca ttg cca att aga caa aca gca tca att ttc aaa caa ccg gta	768
Thr Thr Leu Pro Ile Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val	
245 250 255	
acc aaa gtc aca aat cat cct agt aat aaa gtg aaa tca gac cca caa	816
Thr Lys Val Thr Asn His Pro Ser Asn Lys Val Lys Ser Asp Pro Gln	
260 265 270	
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Gly Leu Ser Ala Ser Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu	
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Thr Gly Gln Val Ser Ala Ala Val Glu Lys Asn Pro Ala Val Trp Leu	
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atc agg aaa cag gaa gag cga gta cag caa gta cgc aag aaa ttg gaa	1152
Ile Arg Lys Gln Glu Glu Arg Val Gln Gln Val Arg Lys Lys Leu Glu	
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gaa gca ctg atg gca gac atc ttg tcg cga gct gct gat aca gaa gag	1200
Glu Ala Leu Met Ala Asp Ile Leu Ser Arg Ala Ala Asp Thr Glu Glu	
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35 40 45	
Glu Ile Asp Ser Val Gly Ser Glu Asp Ser Leu Asp Thr Ser Leu Arg	

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Pro Ile Arg Arg Lys Arg Ser Ile Glu Glu Ala Val Pro Ala Val Cys		80
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Lys Thr Arg Thr Val Ile Tyr Glu Ile Pro Arg Ser Gln Val Asp Pro		
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Thr Ser Ala Asn Phe Leu Ile Trp Pro Pro Cys Val Glu Val Lys Arg		
115	120	125
Cys Thr Gly Cys Cys Asn Thr Ser Ser Val Lys Cys Gln Pro Ser Arg		
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Val His His Arg Ser Val Lys Val Ala Lys Val Glu Tyr Val Arg Lys		
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Lys Pro Lys Leu Lys Glu Val Gln Val Arg Leu Glu Glu His Leu Glu		160
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His	Val	Leu	Ala	Glu	Glu	Ala	Glu	Ile	Pro	Arg	Glu	Val	Ile	Glu	Arg	
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ctg	gcc	cgc	agt	cag	atc	cac	agc	atc	egg	gac	ctc	cag	cga	ctc	ctg	144
Leu	Ala	Arg	Ser	Gln	Ile	His	Ser	Ile	Arg	Asp	Leu	Gln	Arg	Leu	Leu	
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Glu Ile Asp Ser Val Gly Ser Glu Asp Ser Leu Asp Thr Ser Leu Arg
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gct cac ggg gtc cac gcc act aag cat gtg ccc gag aag cgg ccc ctg 240
Ala His Gly Val His Ala Thr Lys His Val Pro Glu Lys Arg Pro Leu
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ccc att cgg agg aag aga agc atc gag gaa gtc ccc gtc tgc 288
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Lys Thr Arg Thr Val Ile Tyr Glu Ile Pro Arg Ser Gln Val Asp Pro
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Thr Ser Ala Asn Phe Leu Ile Trp Pro Pro Cys Val Glu Val Lys Arg
115 120 125
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Cys Thr Gly Cys Cys Asn Thr Ser Ser Val Lys Cys Gln Pro Ser Arg
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Val His His Arg Ser Val Lys Val Ala Lys Val Glu Tyr Val Arg Lys
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aag cca aaa tta aaa gaa gtc cag gtg agg tta gag gag cat ttg gag 528
Lys Pro Lys Leu Lys Glu Val Gln Val Arg Leu Glu Glu His Leu Glu
165 170 175
tgc gcc tgc gcg acc aca agc ctg aat cgg gat tat cgg gaa gag gac 576
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His Gly Asp Pro Gly Glu Glu Asp Gly Ala Glu Leu Asp Leu Asn Met
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Thr Arg Ser His Ser Gly Gly Glu Leu Glu Ser Leu Ala Arg Gly Arg
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Cys Lys Thr Arg Thr Glu Val Phe Glu Ile Ser Arg Arg Leu Ile Asp
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Arg Thr Asn Ala Asn Phe Leu Val Trp Pro Pro Cys Val Glu Val Gln
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Arg Cys Ser Gly Cys Cys Asn Asn Arg Asn Val Gln Cys Arg Pro Thr
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Gln Val Gln Leu Arg Pro Val Gln Val Arg Lys Ile Glu Ile Val Arg
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Lys Lys Pro Ile Phe Lys Lys Ala Thr Val Thr Leu Glu Asp His Leu
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180 185 190
Pro Gly Gly Ser Gln Glu Gln Arg Ala Lys Thr Pro Gln Thr Arg Val
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Leu Val Ser Ala Glu Gly Asp Pro Ile Pro Glu Glu Leu Tyr Glu Met			
20	25	30	
ctg agt gac cac tgc atc cgc tcc ttt gat gat ctc caa cgc ctg ctg	35	40	144
Leu Ser Asp His Ser Ile Arg Ser Phe Asp Asp Leu Gln Arg Leu Leu			
35	40	45	
cac gga gac ccc gga gag gaa gat ggg gcc gag ttg gac ctg aac atg	50	55	192
His Gly Asp Pro Gly Glu Asp Gly Ala Glu Leu Asp Leu Asn Met			
50	55	60	
acc cgc tcc cac tct gga ggc gag ctg gag agc ttg gct cgt gga aga	65	70	240
Thr Arg Ser His Ser Gly Gly Glu Leu Glu Ser Leu Ala Arg Gly Arg			
65	70	75	80
agg agc ctg ggt tcc ctg acc att gct gag ccg gcc atg atc gcc gag	85	90	288
Arg Ser Leu Gly Ser Leu Thr Ile Ala Glu Pro Ala Met Ile Ala Glu			
85	90	95	
tgc aag acg cgc acc gag gtg ttc gag atc tcc cgg cgc ctc ata gac	100	105	336
Cys Lys Thr Arg Thr Glu Val Phe Glu Ile Ser Arg Arg Leu Ile Asp			
100	105	110	
cgc acc aac gcc aac ttc ctg gtg tgg ccg ccc tgt gtg gag gtg cag	115	120	384
Arg Thr Asn Ala Asn Phe Leu Val Trp Pro Pro Cys Val Glu Val Gln			
115	120	125	
cgc tgc tcc ggc tgc tgc aac aac cgc aac gtg cag tgc cgc ccc acc	130	135	432
Arg Cys Ser Gly Cys Cys Asn Asn Arg Asn Val Gln Cys Arg Pro Thr			
130	135	140	
cag gtg cag ctg cga cct gtc cag gtg aga aag atc gag att gtg cgg	145	150	480
Gln Val Gln Leu Arg Pro Val Gln Val Arg Lys Ile Glu Ile Val Arg			
145	150	155	160
aag aag cca atc ttt aag aag gcc acg gtg acg ctg gaa gac cac ctg	165	170	528
Lys Lys Pro Ile Phe Lys Lys Ala Thr Val Thr Leu Glu Asp His Leu			
165	170	175	
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195 200 205
acc att cgg acg gtg cga gtc cgc cgg ccc ccc aag ggc aag cac cgg 672
Thr Ile Arg Thr Val Arg Val Arg Arg Pro Pro Lys Gly Lys His Arg
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aaa ttc aag cac acg cat gac aag acg gca ctg aag gag acc ctt gga 720
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Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu
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Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn
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Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys
85 90 95
Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr
100 105 110
Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys
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Gly	Ser	Gly	Ala	Phe	Pro	Pro	Gly	His	Phe	Lys	Asp	Pro	Lys	Arg	Leu	
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tac	tgc	aaa	aac	ggg	gac	ttc	ttc	ctg	cgc	atc	cac	ccc	gac	ggc	cga	144
Tyr	Cys	Lys	Asn	Gly	Gly	Phe	Phe	Leu	Arg	Ile	His	Pro	Asp	Gly	Arg	
		35			40								45			
gtt	gac	ggg	gtc	cg	gag	aag	agc	gac	cct	cac	atc	aag	cta	caa	ctt	192
Val	Asp	Gly	Val	Arg	Glu	Lys	Ser	Asp	Pro	His	Ile	Lys	Leu	Gln	Leu	
		50			55								60			
caa	gca	gaa	gag	aga	gga	gtt	gt	tct	atc	aaa	gga	gt	tgt	gct	aac	240
Gln	Ala	Glu	Glu	Arg	Gly	Val	Val	Ser	Ile	Lys	Gly	Val	Cys	Ala	Asn	
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cgt	tac	ctg	gct	atg	aag	gaa	gat	gga	aga	tta	ctg	gct	tct	aaa	tgt	288
Arg	Tyr	Leu	Ala	Met	Lys	Glu	Asp	Gly	Arg	Leu	Leu	Ala	Ser	Lys	Cys	
		85			90								95			
gtt	acg	gat	gag	tgt	ttc	ttt	ttt	gaa	cga	ttg	gaa	tct	aat	aac	tac	336
Val	Thr	Asp	Glu	Cys	Phe	Phe	Glu	Arg	Leu	Glu	Ser	Asn	Asn	Tyr		
		100			105								110			
aat	act	tac	cg	tca	agg	aaa	tac	acc	agt	tgg	tat	gt	gca	ttg	aaa	384
Asn	Thr	Tyr	Arg	Ser	Arg	Lys	Tyr	Thr	Ser	Trp	Tyr	Val	Ala	Leu	Lys	
		115			120								125			
cga	act	ggg	cag	tat	aaa	ctt	gga	tcc	aaa	aca	gga	cct	ggg	cag	aaa	432
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Gly Leu Pro Glu Leu Arg Ala Glu Leu Gly Arg Ala Pro Ser Pro Ala
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Leu Cys Ala Leu Gln Lys Ala Val Glu Leu Glu Lys Thr Glu Ala Asp
115 120 125
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Phe Ser Gln Ala Gln Val Tyr Glu Leu Glu Arg Arg Phe Lys Gln Gln
145 150 155 160
Arg Tyr Leu Ser Ala Pro Glu Arg Asp Gln Leu Ala Ser Val Leu Lys
165 170 175
Leu Thr Ser Thr Gln Val Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys
180 185 190
Cys Lys Arg Gln Arg Gln Asp Gln Thr Leu Glu Leu Val Gly Leu Pro
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Pro Pro Pro Pro Pro Ala Arg Arg Ile Ala Val Pro Val Leu Val

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225	230	235
Tyr Gly Val Gly Leu Asn Pro Tyr Gly Tyr Asn Ala Tyr Pro Ala Tyr		
245	250	255
Pro Gly Tyr Gly Gly Ala Ala Cys Ser Pro Gly Tyr Ser Cys Thr Ala		
260	265	270
Ala Tyr Pro Ala Gly Pro Ser Pro Ala Gln Pro Ala Thr Ala Ala Ala		
275	280	285
Asn Asn Asn Phe Val Asn Phe Gly Val Gly Asp Leu Asn Ala Val Gln		
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atc cta aac ctg gaa cag cag cag cgc agc ctg gct gcc gcc gga gag	96		
Ile Leu Asn Leu Glu Gln Gln Arg Ser Leu Ala Ala Gly Glu			
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Leu Ser Ala Arg Leu Glu Ala Thr Leu Ala Pro Ser Ser Cys Met Leu			
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Ala Ala Phe Lys Pro Glu Ala Tyr Ala Gly Pro Glu Ala Ala Ala Pro			
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65 70 75 80
aag tgt gct tct gcc ttt ccc gcc gcc ecc gcc ttc tat cca cgt gcc 288
Lys Cys Ala Ser Ala Phe Pro Ala Ala Pro Ala Phe Tyr Pro Arg Ala
85 90 95
tac agc gac ccc gac cca gcc aag gac cct aga gcc gaa aag aaa gag 336
Tyr Ser Asp Pro Asp Pro Ala Lys Asp Pro Arg Ala Glu Lys Lys Glu
100 105 110
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Leu Cys Ala Leu Gln Lys Ala Val Glu Leu Glu Lys Thr Glu Ala Asp
115 120 125
aac gcg gag cgg ccc cgg gcg cga cgg cgg agg aag cgg cgc gtg ctc 432
Asn Ala Glu Arg Pro Arg Ala Arg Arg Arg Lys Pro Arg Val Leu
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ttc tcg cag gcg cag gtc tat gag ctg gag cgg cgc ttc aag cag cag 480
Phe Ser Gln Ala Gln Val Tyr Glu Leu Glu Arg Arg Phe Lys Gln Gln
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Arg Tyr Leu Ser Ala Pro Glu Arg Asp Gln Leu Ala Ser Val Leu Lys
165 170 175
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Leu Thr Ser Thr Gln Val Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys
180 185 190
tgc aag cgg cag cgg cag gac cag act ctg gag ctg gtg ggg ctg ccc 624
Cys Lys Arg Gln Arg Gln Asp Gln Thr Leu Glu Leu Val Gly Leu Pro
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210 215 220
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Arg Asp Gly Lys Pro Cys Leu Gly Asp Ser Ala Pro Tyr Ala Pro Ala
225 230 235 240
tac ggc gtg ggc ctc aat ccc tac ggt tat aac gcc tac ccc gcc tat 768
Tyr Gly Val Gly Leu Asn Pro Tyr Gly Tyr Asn Ala Tyr Pro Ala Tyr
245 250 255
ccg ggt tac ggc ggc gcg gcc tgc agc cct ggc tac agc tgc act gcc 816

Pro Gly Tyr Gly Gly Ala Ala Cys Ser Pro Gly Tyr Ser Cys Thr Ala
260 265 270
gct tac ccc gcc ggg cct tcc cca gcg cag ccg gcc act gcc gcc gcc 864
Ala Tyr Pro Ala Gly Pro Ser Pro Ala Gln Pro Ala Thr Ala Ala Ala
275 280 285
aac aac aac ttc gtg aac ttc ggc gtc ggg gac ttg aat gcg gtt cag 912
Asn Asn Asn Phe Val Asn Phe Gly Val Gly Asp Leu Asn Ala Val Gln
290 295 300
agc ccc ggg att ccg cag agc aac tcg gga gtg tcc acg ctg cat ggt 960
Ser Pro Gly Ile Pro Gln Ser Asn Ser Gly Val Ser Thr Leu His Gly
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Ile Arg Ala Trp
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Ala Ser Ser Pro Val Tyr Leu Pro Thr Pro Arg Val Pro Ser Ser Val
35 40 45
Leu Gly Leu Ser Tyr Leu Gln Gly Gly Ala Gly Ser Ala Ser Gly
50 55 60
Gly Pro Ser Gly Gly Ser Pro Gly Gly Ala Ala Ser Gly Ala Gly Pro
65 70 75 80
Gly Thr Gln Gln Gly Ser Pro Gly Trp Ser Gln Ala Gly Ala Thr Gly
85 90 95
Ala Ala Tyr Thr Pro Pro Val Ser Pro Arg Phe Ser Phe Pro Gly
100 105 110
Thr Thr Gly Ser Leu Ala Ala Ala Ala Ala Ala Ala Arg Glu
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Ala Ala Ala Tyr Ser Ser Gly Gly Ala Ala Gly Ala Gly Leu Ala

130	135	140
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145	150	155
160		
Pro Tyr Pro Ala Tyr	Met Ala Asp Val	Gly Ala Ser Trp Ala Ala Ala
165		170
175		
Ala Ala Ala Ser Ala	Gly Pro Phe Asp Ser	Pro Val Leu His Ser Leu
180	185	190
195	200	205
Asp Asp Phe Ser Glu	Gly Arg Glu Cys Val Asn	Cys Gly Ala Met Ser
210	215	220
225	230	235
240		
Cys Gly Leu Tyr His Lys	Met Asn Gly Ile Asn	Arg Pro Leu Ile Lys
245	250	255
260	265	270
Asn Cys Gln Thr Thr	Thr Leu Trp Arg Arg	Asn Ala Glu Gly
275	280	285
290	295	300
305	310	315
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Lys Pro Lys Asn Leu Asn	Lys Ser Lys Thr	Pro Ala Ala Pro Ser Gly
325	330	335
Ser Glu Ser Leu Pro Pro	Ala Ser Gly Ala Ser	Ser Asn Ser Ser Asn
340	345	350
355	360	365
370	375	380
385	390	395
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Ser Ala Leu Lys Leu Ser	Pro Gln Gly Tyr	Ala Ser Pro Val Ser Gln
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Ala Tyr Gln Ala Gly Gly Pro Gly Pro Phe Met His Gly Ala Gly Ala
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gcg tcc tcg cca gtc tac ctg ccc aca ccg cgg gtg ccc tcc tcc gtt 144
Ala Ser Ser Pro Val Tyr Leu Pro Thr Pro Arg Val Pro Ser Ser Val
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ctg ggc ctg tcc tac ctc cag ggc gga ggc gcg ggc tct gcg tcc gga 192
Leu Gly Leu Ser Tyr Leu Gln Gly Gly Ala Gly Ser Ala Ser Gly
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ggc ccc tcg ggc agc ccc ggt ggg gcc gcg tct ggt gcg ggg ccc 240
Gly Pro Ser Gly Gly Ser Pro Gly Gly Ala Ala Ser Gly Ala Gly Pro
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ggg acc cag cag ggc agc ccg gga tgg agc cag gcg gga gcg acc gga 288
Gly Thr Gln Gln Gly Ser Pro Gly Trp Ser Gln Ala Gly Ala Thr Gly
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gcc gct tac acc ccg ccg gtg tcg ccg cgc ttc tcc ttc ccg ggg 336
Ala Ala Tyr Thr Pro Pro Val Ser Pro Arg Phe Ser Phe Pro Gly
100 105 110
acc acc ggg tcc ctg gcg gcg gcg gct gcc gcc ccg gaa 384
Thr Thr Gly Ser Leu Ala Ala Ala Ala Ala Ala Arg Glu
115 120 125
gct gcg gcc tac agc agt ggc ggc gga gcg gcg ggt gcg ggc ctg gcg 432

Ala Ala Ala Tyr Ser Ser Gly Gly Gly Ala Ala Gly Ala Gly Leu Ala			
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Gly Arg Glu Gln Tyr Gly Arg Ala Gly Phe Ala Gly Ser Tyr Ser Ser			
145	150	155	160
ccc tac ccc gct tac atg gcc gac gtg ggc geg tcc tgg gcc gca gcc			528
Pro Tyr Pro Ala Tyr Met Ala Asp Val Gly Ala Ser Trp Ala Ala Ala			
165	170	175	
gcc gcc gcc tcc gcc ggc ccc ttc gac agc ccc gtc ctg cac agc ctg			576
Ala Ala Ala Ser Ala Gly Pro Phe Asp Ser Pro Val Leu His Ser Leu			
180	185	190	
ccc ggc cgg gcc aac ccc gcc gca cac ccc aat ctc gat atg ttt			624
Pro Gly Arg Ala Asn Pro Ala Ala Arg His Pro Asn Leu Asp Met Phe			
195	200	205	
gac gac ttc tca gaa ggc aga gag tgt gtc aac tgt ggg gct atg tcc			672
Asp Asp Phe Ser Glu Gly Arg Glu Cys Val Asn Cys Gly Ala Met Ser			
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Thr Pro Leu Trp Arg Arg Asp Gly Thr Gly His Tyr Leu Cys Asn Ala			
225	230	235	240
tgt ggc ctc tac cac aag atg aac ggc atc aac cgg ccc ctc atc aag			768
Cys Gly Leu Tyr His Lys Met Asn Gly Ile Asn Arg Pro Leu Ile Lys			
245	250	255	
cct cag cgc cgg ctg tcc gcc tcc cgc cga gtg ggc ctc tcc tgt gcc			816
Pro Gln Arg Arg Leu Ser Ala Ser Arg Arg Val Gly Leu Ser Cys Ala			
260	265	270	
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Asn Cys Gln Thr Thr Thr Leu Trp Arg Arg Asn Ala Glu Gly			
275	280	285	
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Glu Pro Val Cys Asn Ala Cys Gly Leu Tyr Met Lys Leu His Gly Val			
290	295	300	
ccc agg cct ctt gca atg cgg aaa gag ggg atc caa acc aga aaa cgg			960
Pro Arg Pro Leu Ala Met Arg Lys Glu Gly Ile Gln Thr Arg Lys Arg			
305	310	315	320
aag ccc aag aac ctg aat aaa tct aag aca cca gca gct cct tca ggc			1008

Lys Pro Lys Asn Leu Asn Lys Ser Lys Thr Pro Ala Ala Pro Ser Gly
325 330 335 1056
Ser Glu Ser Leu Pro Pro Ala Ser Gly Ala Ser Ser Asn Ser Ser Asn
340 345 350 355 360 365 1104
Gly Leu Ser Ser His Tyr Gly His Ser Ser Val Ser Gln Thr Phe
370 375 380 385 390 395 400 1152
Ser Val Ser Ala Met Ser Gly His Pro Ser Ile His Pro Val Leu
405 410 415 420 425 430 1248
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35 40 45
Asn Ser Ser Asn Lys Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Lys
50 55 60 1326

Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu Pro His Glu Ser Arg Thr
65 70 75 80
Asn Ser Asp Ile Val Glu Ala Leu Asn Lys Lys Glu His Arg Gly Cys
85 90 95
Asp Ser Pro Asp Pro Asp Thr Ser Tyr Val Leu Thr Pro His Thr Glu
100 105 110
Glu Lys Tyr Lys Lys Ile Asn Glu Glu Phe Asp Asn Met Met Arg Asn
115 120 125
His Lys Ile Ala Pro Gly Leu Pro Pro Gln Asn Phe Ser Met Ser Val
130 135 140
Thr Val Pro Val Thr Ser Pro Asn Ala Leu Ser Tyr Thr Asn Pro Gly
145 150 155 160
Ser Ser Leu Val Ser Pro Ser Leu Ala Ala Ser Ser Thr Leu Thr Asp
165 170 175
Ser Ser Met Leu Ser Pro Pro Gln Thr Thr Leu His Arg Asn Val Ser
180 185 190
Pro Gly Ala Pro Gln Arg Pro Pro Ser Thr Gly Asn Ala Gly Gly Met
195 200 205
Leu Ser Thr Thr Asp Leu Thr Val Pro Asn Gly Ala Gly Ser Ser Pro
210 215 220
Val Gly Asn Gly Phe Val Asn Ser Arg Ala Ser Pro Asn Leu Ile Gly
225 230 235 240
Ala Thr Gly Ala Asn Ser Leu Gly Lys Val Met Pro Thr Lys Ser Pro
245 250 255
Pro Pro Pro Gly Gly Asn Leu Gly Met Asn Ser Arg Lys Pro Asp
260 265 270
Leu Arg Val Val Ile Pro Pro Ser Ser Lys Gly Met Met Pro Pro Leu
275 280 285
Ser Glu Glu Glu Leu Glu Leu Asn Thr Gln Arg Ile Ser Ser Ser
290 295 300
Gln Ala Thr Gln Pro Leu Ala Thr Pro Val Val Ser Val Thr Thr Pro
305 310 315 320
Ser Leu Pro Pro Gln Gly Leu Val Tyr Ser Ala Met Pro Thr Ala Tyr
325 330 335
Asn Thr Asp Tyr Ser Leu Thr Ser Ala Asp Leu Ser Ala Leu Gln Gly
340 345 350

Phe Asn Ser Pro Gly Met Leu Ser Leu Gly Gln Val Ser Ala Trp Gln
355 360 365
Gln His His Leu Gly Gln Ala Ala Leu Ser Ser Leu Val Ala Gly Gly
370 375 380
Gln Leu Ser Gln Gly Ser Asn Leu Ser Ile Asn Thr Asn Gln Asn Ile
385 390 395 400
Ser Ile Lys Ser Glu Pro Ile Ser Pro Pro Arg Asp Arg Met Thr Pro
405 410 415
Ser Gly Phe Gln Gln Gln Gln Gln Gln Gln Gln Gln Pro Pro
420 425 430
Pro Pro Pro Gln Pro Gln Pro Pro Gln Pro Gln Pro Arg Gln
435 440 445
Glu Met Gly Arg Ser Pro Val Asp Ser Leu Ser Ser Ser Ser
450 455 460
Tyr Asp Gly Ser Asp Arg Glu Asp Pro Arg Gly Asp Phe His Ser Pro
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Arg Gln Val Thr Phe Thr Lys Arg Lys Phe Gly Leu Met Lys Lys Ala
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tat gaa ctt agt gtg ctc tgt gac tgt gaa ata gca ctc atc att ttc 144
Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Phe

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Asn Ser Ser Asn Lys Leu Phe Gln Tyr Ala Ser	Thr Asp Met Asp Lys		
50	55	60	
gtt ctt ctc aag tat aca gaa tat aat	gaa cct cat gaa	agc aga acc	240
Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu	Pro His Glu Ser Arg Thr		
65	70	75	80
aac tcg gat att gtt gag gct ctg aac aag	aag gaa cac aga	ggg tgc	288
Asn Ser Asp Ile Val Glu Ala Leu Asn Lys	Lys Glu His Arg Gly Cys		
85	90	95	
gac agc cca gac cct gat act tca tat	gtg cta act cca cat	aca gaa	336
Asp Ser Pro Asp Pro Asp Thr Ser Tyr Val	Leu Thr Pro His Thr Glu		
100	105	110	
gaa aaa tat aaa aaa att aat gag gaa	ttt gat aat atg atg	cgg aat	384
Glu Lys Tyr Lys Lys Ile Asn Glu Glu	Phe Asp Asn Met Met Arg Asn		
115	120	125	
cat aaa atc gca cct ggt ctg cca cct	cag aac ttt tca atg tct	gtc	432
His Lys Ile Ala Pro Gly Leu Pro Pro Gln	Asn Phe Ser Met Ser Val		
130	135	140	
aca gtt cca gtg acc agc ccc	aat gct ttg tcc tac	act aac cca ggg	480
Thr Val Pro Val Thr Ser Pro Asn Ala	Leu Ser Tyr Thr Asn Pro Gly		
145	150	155	160
agt tca ctg gtg tcc cca tct ttg	gca gcc agc tca acg tta	aca gat	528
Ser Ser Leu Val Ser Pro Ser Leu Ala	Ala Ser Ser Thr Leu Thr Asp		
165	170	175	
tca agc atg ctc tct cca cct	caa acc aca tta cat	aga aat gtg tct	576
Ser Ser Met Leu Ser Pro Pro Gln Thr	Thr Leu His Arg Asn Val Ser		
180	185	190	
cct gga get cct cag aga cca cca	agt act ggc aat gca	ggt ggg atg	624
Pro Gly Ala Pro Gln Arg Pro Pro Ser Thr	Gly Asn Ala Gly Gly Met		
195	200	205	
ttg agc act aca gac ctc aca	gtg cca aat gga	gct gga agc agt cca	672
Leu Ser Thr Thr Asp Leu Thr Val Pro Asn	Gly Ala Gly Ser Ser Pro		
210	215	220	
gtg ggg aat gga ttt gta aac tca	aga gct tct cca	aat ttg att gga	720
Val Gly Asn Gly Phe Val Asn Ser Arg Ala	Ser Pro Asn Leu Ile Gly		

225	230	235	240	
gct act ggt gca aat agc tta ggc aaa gtc atg cct aca aag tct ccc				768
Ala Thr Gly Ala Asn Ser Leu Gly Lys Val Met Pro Thr Lys Ser Pro				
245	250	255		
cct cca cca ggt ggt aat ctt gga atg aac agt agg aaa cca gat				816
Pro Pro Pro Gly Gly Asn Leu Gly Met Asn Ser Arg Lys Pro Asp				
260	265	270		
ctt cga gtt gtc atc ccc cct tca agc aag ggc atg atg cct cca cta				864
Leu Arg Val Val Ile Pro Pro Ser Ser Lys Gly Met Met Pro Pro Leu				
275	280	285		
tcg gag gaa gag gaa ttg gag ttg aac acc caa agg atc agt agt tct				912
Ser Glu Glu Glu Leu Glu Leu Asn Thr Gln Arg Ile Ser Ser Ser				
290	295	300		
caa gcc act caa cct ctt gct acc cca gtc gtg tct gtg aca acc cca				960
Gln Ala Thr Gln Pro Leu Ala Thr Pro Val Val Ser Val Thr Thr Pro				
305	310	315	320	
agc ttg cct ccg caa gga ctt gtg tac tca gca atg ccg act gcc tac				1008
Ser Leu Pro Pro Gln Gly Leu Val Tyr Ser Ala Met Pro Thr Ala Tyr				
325	330	335		
aac act gat tat tca ctg acc agc gct gac ctg tca gcc ctt caa ggc				1056
Asn Thr Asp Tyr Ser Leu Thr Ser Ala Asp Leu Ser Ala Leu Gln Gly				
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ttc aac tcg cca gga atg ctg tcg ctg gga cag gtg tcg gcc tgg cag				1104
Phe Asn Ser Pro Gly Met Leu Ser Leu Gly Gln Val Ser Ala Trp Gln				
355	360	365		
cag cac cac cta gga caa gca gcc ctc agc tct ctt gtt gct gga ggg				1152
Gln His His Leu Gly Gln Ala Ala Leu Ser Ser Leu Val Ala Gly Gly				
370	375	380		
cag tta tct cag ggt tcc aat tta tcc att aat acc aac caa aac atc				1200
Gln Leu Ser Gln Gly Ser Asn Leu Ser Ile Asn Thr Asn Gln Asn Ile				
385	390	395	400	
agc atc aag tcc gaa ccg att tca cct cct cgg gat cgt atg acc cca				1248
Ser Ile Lys Ser Glu Pro Ile Ser Pro Pro Arg Asp Arg Met Thr Pro				
405	410	415		
tcg ggc ttc cag ccc ccc				1296
Ser Gly Phe Gln Pro Pro				

420	425	430	
cca cca ccg cag ccc cag cca caa ccc ccg cag ccc cag cca cag			1344
Pro Pro Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Arg Gln			
435	440	445	
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Glu Met Gly Arg Ser Pro Val Asp Ser Leu Ser Ser Ser Ser Ser			
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Tyr Asp Gly Ser Asp Arg Glu Asp Pro Arg Gly Asp Phe His Ser Pro			
465	470	475	480
att gtg ctt ggc cga ccc cca aac act gag gac aga gaa agc cct tct			1488
Ile Val Leu Gly Arg Pro Pro Asn Thr Glu Asp Arg Glu Ser Pro Ser			
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Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Phe			
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Asn Ser Ala Asn Arg Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Arg			
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Val Leu Leu Lys Tyr Thr Glu Tyr Ser Glu Pro His Glu Ser Arg Thr			
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Asn Thr Asp Ile Leu Glu Thr Leu Lys Arg Arg Gly Ile Gly Leu Asp			
85	90	95	
Gly Pro Glu Leu Glu Pro Asp Glu Gly Pro Glu Glu Pro Gly Glu Lys			
100	105	110	
Phe Arg Arg Leu Ala Gly Glu Gly Asp Pro Ala Leu Pro Arg Pro			

115 120 125
Arg Leu Tyr Pro Ala Ala Pro Ala Met Pro Ser Pro Asp Val Val Tyr
130 135 140
Gly Ala Leu Pro Pro Pro Gly Cys Asp Pro Ser Gly Leu Gly Glu Ala
145 150 155 160
Leu Pro Ala Gln Ser Arg Pro Ser Pro Phe Arg Pro Ala Ala Pro Lys
165 170 175
Ala Gly Pro Pro Gly Leu Val His Pro Leu Phe Ser Pro Ser His Leu
180 185 190
Thr Ser Lys Thr Pro Pro Pro Leu Tyr Leu Pro Thr Glu Gly Arg Arg
195 200 205
Ser Asp Leu Pro Gly Gly Leu Ala Gly Pro Arg Gly Gly Leu Asn Thr
210 215 220
Ser Arg Ser Leu Tyr Ser Gly Leu Gln Asn Pro Cys Ser Thr Ala Thr
225 230 235 240
Pro Gly Pro Pro Leu Gly Ser Phe Pro Phe Leu Pro Gly Gly Pro Pro
245 250 255
Val Gly Ala Glu Ala Trp Ala Arg Arg Val Pro Gln Pro Ala Ala Pro
260 265 270
Pro Arg Arg Pro Pro Gln Ser Ala Ser Ser Leu Ser Ala Ser Leu Arg
275 280 285
Pro Pro Gly Ala Pro Ala Thr Phe Leu Arg Pro Ser Pro Ile Pro Cys
290 295 300
Ser Ser Pro Gly Pro Trp Gln Ser Leu Cys Gly Leu Gly Pro Pro Cys
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Arg	Gln	Val	Thr	Phe	Thr	Lys	Arg	Lys	Phe	Gly	Leu	Met	Lys	Lys	Ala		
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tat	gag	ctg	agc	gtg	ctc	tgt	gac	tgt	gag	ata	gcc	ctc	atc	atc	ttc	144	
Tyr	Glu	Leu	Ser	Val	Leu	Cys	Asp	Cys	Glu	Ile	Ala	Leu	Ile	Ile	Phe		
35	40	45															
aac	agc	gcc	aac	cgc	ctc	ttc	cag	tat	gcc	agc	acg	gac	atg	gac	cgt	192	
Asn	Ser	Ala	Asn	Arg	Leu	Phe	Gln	Tyr	Ala	Ser	Thr	Asp	Met	Asp	Arg		
50	55	60															
gtg	ctg	ctg	aag	tac	aca	gag	tac	agc	gag	ccc	cac	gag	agc	cgc	acc	240	
Val	Leu	Leu	Lys	Tyr	Thr	Glu	Tyr	Ser	Glu	Pro	His	Glu	Ser	Arg	Thr		
65	70	75	80														
aac	act	gac	atc	ctc	gag	acg	ctg	aag	ogg	agg	ggc	att	ggc	ctc	gat	288	
Asn	Thr	Asp	Ile	Leu	Glu	Thr	Leu	Lys	Arg	Arg	Gly	Ile	Gly	Leu	Asp		
85	90	95															
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Gly	Pro	Glu	Leu	Glu	Pro	Asp	Glu	Gly	Pro	Glu	Gly	Pro	Glu	Gly	Glu	Lys	
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Phe	Arg	Arg	Leu	Ala	Gly	Glu	Gly	Gly	Asp	Pro	Ala	Leu	Pro	Arg	Pro		
115	120	125															
cgg	ctg	tat	cct	gca	gct	cct	gct	atg	ccc	agc	cca	gat	gtg	gta	tac	432	
Arg	Leu	Tyr	Pro	Ala	Ala	Pro	Ala	Met	Pro	Ser	Pro	Asp	Val	Val	Tyr		
130	135	140															
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Gly	Ala	Leu	Pro	Pro	Gly	Cys	Asp	Pro	Ser	Gly	Leu	Gly	Glu	Ala			
145	150	155	160														
ctg	ccc	gcc	cag	agc	cgc	cca	tct	ccc	ttc	ega	cca	gca	gcc	ccc	aaa	528	
Leu	Pro	Ala	Gln	Ser	Arg	Pro	Ser	Pro	Phe	Arg	Pro	Ala	Ala	Pro	Lys		
165	170	175															

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Ala	Gly	Pro	Pro	Gly	Leu	Val	His	Pro	Leu	Phe	Ser	Pro	Ser	His	Leu	
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Thr	Ser	Lys	Thr	Pro	Pro	Pro	Leu	Tyr	Leu	Pro	Thr	Glu	Gly	Arg	Arg	
195								200							205	
tca	gac	ctg	cct	ggt	ggc	ctg	gct	ggg	ccc	cga	ggg	gga	cta	aac	acc	672
Ser	Asp	Leu	Pro	Gly	Gly	Leu	Ala	Gly	Pro	Arg	Gly	Gly	Leu	Asn	Thr	
210								215							220	
tcc	aga	agc	ctc	tac	agt	ggc	ctg	cag	aac	ccc	tgc	tcc	act	gca	act	720
Ser	Arg	Ser	Leu	Tyr	Ser	Gly	Leu	Gln	Asn	Pro	Cys	Ser	Thr	Ala	Thr	
225								230				235			240	
ccc	gga	ccc	cca	ctg	ggg	agc	ttc	ccc	ttc	ctc	ccc	gga	ggc	ccc	cca	768
Pro	Gly	Pro	Pro	Leu	Gly	Ser	Phe	Pro	Phe	Leu	Pro	Gly	Gly	Pro	Pro	
245								250							255	
gtg	ggg	gcc	gaa	gcc	tgg	gct	agg	agg	gtc	ccc	caa	ccc	gct	gct	gct	816
Val	Gly	Ala	Glu	Ala	Trp	Ala	Arg	Arg	Val	Pro	Gln	Pro	Ala	Ala	Pro	
260								265							270	
ccc	cgc	ega	ccc	ccc	cag	tca	gca	tca	agt	ctg	agc	gcc	tct	ctc	cgg	864
Pro	Arg	Arg	Pro	Pro	Gln	Ser	Ala	Ser	Ser	Leu	Ser	Ala	Ser	Leu	Arg	
275								280							285	
ccc	ccg	ggg	gcc	ccg	act	ttc	cta	aga	cct	tcc	cct	atc	cct	tgc	912	
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290								295							300	
tcc	tgc	ccc	ggt	ccc	tgg	cag	agc	ctc	tgc	ggc	ctg	ggc	ccg	ccc	tgc	960
Ser	Ser	Pro	Gly	Pro	Trp	Gln	Ser	Leu	Cys	Gly	Leu	Gly	Pro	Pro	Cys	
305								310				315			320	
gcc	ggc	tgc	cct	tgg	ccg	acg	gct	ggc	ccc	ggt	agg	aga	tca	ccc	ggt	1008
Ala	Gly	Cys	Pro	Trp	Pro	Thr	Ala	Gly	Pro	Gly	Arg	Arg	Ser	Pro	Gly	
325								330							335	
ggc	acc	agc	cca	gag	cgc	tca	ggt	acg	gct	ggc	ccc	ggt	agg	aga	tca	1056
Gly	Thr	Ser	Pro	Glu	Arg	Ser	Pro	Gly	Thr	Ala	Arg	Ala	Arg	Gly	Asp	
340								345							350	
ccc	acc	tcc	ctc	cag	gcc	tct	tca	gag	aag	acc	caa	cag				1095
Pro	Thr	Ser	Leu	Gln	Ala	Ser	Ser	Glu	Lys	Thr	Gln	Gln				
355								360				365				

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<211> 465

<212> PRT

<213> Homo sapiens

<400> 17

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Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile Phe
35 40 45
Asn Ser Thr Asn Lys Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Lys
50 55 60
Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu Pro His Glu Ser Arg Thr
65 70 75 80
Asn Ser Asp Ile Val Glu Thr Leu Arg Lys Lys Gly Leu Asn Gly Cys
85 90 95
Asp Ser Pro Asp Pro Asp Ala Asp Asp Ser Val Gly His Ser Pro Glu
100 105 110
Ser Glu Asp Lys Tyr Arg Lys Ile Asn Glu Asp Ile Asp Leu Met Ile
115 120 125
Ser Arg Gln Arg Leu Cys Ala Val Pro Pro Pro Asn Phe Glu Met Pro
130 135 140
Val Ser Ile Pro Val Ser Ser His Asn Ser Leu Val Tyr Ser Asn Pro
145 150 155 160
Val Ser Ser Leu Gly Asn Pro Asn Leu Leu Pro Leu Ala His Pro Ser
165 170 175
Leu Gln Arg Asn Ser Met Ser Pro Gly Val Thr His Arg Pro Pro Ser
180 185 190
Ala Gly Asn Thr Gly Gly Leu Met Gly Gly Asp Leu Thr Ser Gly Ala
195 200 205
Gly Thr Ser Ala Gly Asn Gly Tyr Gly Asn Pro Arg Asn Ser Pro Gly
210 215 220
Leu Leu Val Ser Pro Gly Asn Leu Asn Lys Asn Met Gln Ala Lys Ser
225 230 235 240
Pro Pro Pro Met Asn Leu Gly Met Asn Asn Arg Lys Pro Asp Leu Arg

	245	250	255												
Val	Leu	Ile	Pro	Pro	Gly	Ser	Lys	Asn	Thr	Met	Pro	Ser	Val	Asn	Gln
	260		265		270										
Arg	Ile	Asn	Asn	Ser	Gln	Ser	Ala	Gln	Ser	Leu	Ala	Thr	Pro	Val	Val
	275		280		285										
Ser	Val	Ala	Thr	Pro	Thr	Leu	Pro	Gly	Gln	Gly	Met	Gly	Gly	Tyr	Pro
	290		295		300										
Ser	Ala	Ile	Ser	Thr	Thr	Tyr	Gly	Thr	Glu	Tyr	Ser	Leu	Ser	Ser	Ala
	305		310		315										320
Asp	Leu	Ser	Ser	Leu	Ser	Gly	Phe	Asn	Thr	Ala	Ser	Ala	Leu	His	Leu
	325		330		335										
Gly	Ser	Val	Thr	Gly	Trp	Gln	Gln	His	Leu	His	Asn	Met	Pro	Pro	
	340		345		350										
Ser	Ala	Leu	Ser	Gln	Leu	Gly	Ala	Cys	Thr	Ser	Thr	His	Leu	Ser	Gln
	355		360		365										
Ser	Ser	Asn	Leu	Ser	Leu	Pro	Ser	Thr	Gln	Ser	Leu	Asn	Ile	Lys	Ser
	370		375		380										
Glu	Pro	Val	Ser	Pro	Pro	Arg	Asp	Arg	Thr	Thr	Thr	Pro	Ser	Arg	Tyr
	385		390		395										400
Pro	Gln	His	Thr	Arg	His	Glu	Ala	Gly	Arg	Ser	Pro	Val	Asp	Ser	Leu
	405		410		415										
Ser	Ser	Cys	Ser	Ser	Ser	Tyr	Asp	Gly	Ser	Asp	Arg	Glu	Asp	His	Arg
	420		425		430										
Asn	Glu	Phe	His	Ser	Pro	Ile	Gly	Leu	Thr	Arg	Pro	Ser	Pro	Asp	Glu
	435		440		445										
Arg	Glu	Ser	Pro	Ser	Val	Lys	Arg	Met	Arg	Leu	Ser	Glu	Gly	Trp	Ala
	450		455		460										

Thr

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<211> 1395

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(1398)

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aga cag gtg aca ttt aca aag agg aaa ttt ggg ttg atg aag aag gct	96
Arg Gln Val Thr Phe Thr Lys Arg Lys Phe Gly Leu Met Lys Lys Ala	
20 25 30	
tat gag ctg agc gtg ctg tgt gac tgt gag att gcg ctg atc atc ttc	144
Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile Phe	
35 40 45	
aac agc acc aac aag ctg ttc cag tat gcc agc acc gac atg gac aaa	192
Asn Ser Thr Asn Lys Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Lys	
50 55 60	
gtg ctt ctc aag tac acg gag tac aac gag ccg cat gag agc cgg aca	240
Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu Pro His Glu Ser Arg Thr	
65 70 75 80	
aac tca gac atc gtg gag acg ttg aga aag aag ggc ctt aat ggc tgt	288
Asn Ser Asp Ile Val Glu Thr Leu Arg Lys Lys Gly Leu Asn Gly Cys	
85 90 95	
gac agc cca gac ccc gat gcg gac gat tcc gta ggt cac agc cct gag	336
Asp Ser Pro Asp Pro Asp Ala Asp Asp Ser Val Gly His Ser Pro Glu	
100 105 110	
tct gag gac aag tac agg aaa att aac gaa gat att gat cta atg atc	384
Ser Glu Asp Lys Tyr Arg Lys Ile Asn Glu Asp Ile Asp Leu Met Ile	
115 120 125	
agc agg caa aga ttg tgt gct gtt cca cct ccc aac ttc gag atg cca	432
Ser Arg Gln Arg Leu Cys Ala Val Pro Pro Asn Phe Glu Met Pro	
130 135 140	
gtc tcc atc cca gtg tcc agc cac aac agt ttg gtg tac agc aac cct	480
Val Ser Ile Pro Val Ser Ser His Asn Ser Leu Val Tyr Ser Asn Pro	
145 150 155 160	
gtc agc tca ctg gga aac ccc aac cta ttg cca ctg gct cac cct tct	528
Val Ser Ser Leu Gly Asn Pro Asn Leu Leu Pro Leu Ala His Pro Ser	
165 170 175	
ctg cag agg aat agt atg tct cct ggt gta aca cat cga cct cca agt	576
Leu Gln Arg Asn Ser Met Ser Pro Gly Val Thr His Arg Pro Pro Ser	
180 185 190	

gca ggt aac aca ggt ggt ctg atg ggt gga gac ctc acg tct ggt gca	624
Ala Gly Asn Thr Gly Gly Leu Met Gly Gly Asp Leu Thr Ser Gly Ala	
195 200 205	
ggc acc agt gca ggg aac ggg tat ggc aat ccc cga aac tca cca ggt	672
Gly Thr Ser Ala Gly Asn Gly Tyr Gly Asn Pro Arg Asn Ser Pro Gly	
210 215 220	
ctg ctg gtc tca cct ggt aac ttg aac aag aat atg caa gca aaa tct	720
Leu Leu Val Ser Pro Gly Asn Leu Asn Lys Asn Met Gln Ala Lys Ser	
225 230 235 240	
cct ccc cca atg aat tta gga atg aat aac cgt aaa cca gat ctc cga	768
Pro Pro Pro Met Asn Leu Gly Met Asn Asn Arg Lys Pro Asp Leu Arg	
245 250 255	
gtt ctt att cca cca ggc agc aag aat acg atg cca tca gtg aat caa	816
Val Leu Ile Pro Pro Gly Ser Lys Asn Thr Met Pro Ser Val Asn Gln	
260 265 270	
agg ata aat aac tcc cag tcg gct cag tca ttg gct acc cca gtg gtt	864
Arg Ile Asn Asn Ser Gln Ser Ala Gln Ser Leu Ala Thr Pro Val Val	
275 280 285	
tcc gta gca act cct act tta cca gga caa gga atg gga gga tat cca	912
Ser Val Ala Thr Pro Thr Leu Pro Gly Gln Gly Met Gly Gly Tyr Pro	
290 295 300	
tca gcc att tca aca aca tat ggt acc gag tac tct ctg agt agt gca	960
Ser Ala Ile Ser Thr Thr Tyr Gly Thr Glu Tyr Ser Leu Ser Ser Ala	
305 310 315 320	
gac ctg tca tct ctg tct ggg ttt aac acc gcc agc gct ctt cac ctt	1008
Asp Leu Ser Ser Leu Ser Gly Phe Asn Thr Ala Ser Ala Leu His Leu	
325 330 335	
ggt tca gta act ggc tgg caa cag caa cac cta cat aac atg cca cca	1056
Gly Ser Val Thr Gly Trp Gln Gln His Leu His Asn Met Pro Pro	
340 345 350	
tct gcc ctc agt cag ttg gga gct tgc act agc act cat tta tct cag	1104
Ser Ala Leu Ser Gln Leu Gly Ala Cys Thr Ser Thr His Leu Ser Gln	
355 360 365	
agt tca aat ctc tcc ctg cct tct act caa agc ctc aac atc aag tca	1152
Ser Ser Asn Leu Ser Leu Pro Ser Thr Gln Ser Leu Asn Ile Lys Ser	
370 375 380	

gaa cct gtt tct cct cct aga gac cgt acc acc acc cct tcg aga tac 1200
Glu Pro Val Ser Pro Pro Arg Asp Arg Thr Thr Thr Pro Ser Arg Tyr
385 390 395 400
cca caa cac acg cgc cac gag gcg ggg aga tct cct gtt gac agc ttg 1248
Pro Gln His Thr Arg His Glu Ala Gly Arg Ser Pro Val Asp Ser Leu
405 410 415
agc agc tgt agc agt tcg tac gac ggg agc gac cga gag gat cac cgg 1296
Ser Ser Cys Ser Ser Tyr Asp Gly Ser Asp Arg Glu Asp His Arg
420 425 430
aac gaa ttc cac tcc ccc att gga ctc acc aga cct tcg ccg gac gaa 1344
Asn Glu Phe His Ser Pro Ile Gly Leu Thr Arg Pro Ser Pro Asp Glu
435 440 445
agg gaa agt ccc tca gtc aag cgc atg cga ctt tct gaa gga tgg gca 1392
Arg Glu Ser Pro Ser Val Lys Arg Met Arg Leu Ser Glu Gly Trp Ala
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aca 1395
Thr
465
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20 25 30
Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile Phe
35 40 45
Asn His Ser Asn Lys Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Lys
50 55 60
Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu Pro His Glu Ser Arg Thr
65 70 75 80
Asn Ala Asp Ile Ile Glu Thr Leu Arg Lys Lys Gly Phe Asn Gly Cys
85 90 95
Asp Ser Pro Glu Pro Asp Gly Glu Asp Ser Leu Glu Gln Ser Pro Leu

100 105 110
Leu Glu Asp Lys Tyr Arg Arg Ala Ser Glu Glu Leu Asp Gly Leu Phe
115 120 125
Arg Arg Tyr Gly Ser Thr Val Pro Ala Pro Asn Phe Ala Met Pro Val
130 135 140
Thr Val Pro Val Ser Asn Gln Ser Ser Leu Gln Phe Ser Asn Pro Ser
145 150 155 160
Gly Ser Leu Val Thr Pro Ser Leu Val Thr Ser Ser Leu Thr Asp Pro
165 170 175
Arg Leu Leu Ser Pro Gln Gln Pro Ala Leu Gln Arg Asn Ser Val Ser
180 185 190
Pro Gly Leu Pro Gln Arg Pro Ala Ser Ala Gly Ala Met Leu Gly Gly
195 200 205
Asp Leu Asn Ser Ala Asn Gly Ala Cys Pro Ser Pro Val Gly Asn Gly
210 215 220
Tyr Val Ser Ala Arg Ala Ser Pro Gly Leu Leu Pro Val Ala Asn Gly
225 230 235 240
Asn Ser Leu Asn Lys Val Ile Pro Ala Lys Ser Pro Pro Pro Pro Thr
245 250 255
His Ser Thr Gln Leu Gly Ala Pro Ser Arg Lys Pro Asp Leu Arg Val
260 265 270
Ile Thr Ser Gln Ala Gly Lys Gly Leu Met His His Leu Thr Glu Asp
275 280 285
His Leu Asp Leu Asn Asn Ala Gln Arg Leu Gly Val Ser Gln Ser Thr
290 295 300
His Ser Leu Thr Thr Pro Val Val Ser Val Ala Thr Pro Ser Leu Leu
305 310 315 320
Ser Gln Gly Leu Pro Phe Ser Ser Met Pro Thr Ala Tyr Asn Thr Asp
325 330 335
Tyr Gln Leu Thr Ser Ala Glu Leu Ser Ser Leu Pro Ala Phe Ser Ser
340 345 350
Pro Gly Gly Leu Ser Leu Gly Asn Val Thr Ala Trp Gln Gln Pro Gln
355 360 365
Gln Pro Gln Gln Pro Gln Gln Pro Gln Pro Gln Gln Gln Pro Pro
370 375 380
Gln Pro Gln Gln Pro Gln Gln Pro Gln Gln Pro Gln Gln Pro

385 390 395 400
Pro Gln Gln Gln Ser His Leu Val Pro Val Ser Leu Ser Asn Leu Ile
405 410 415
Pro Gly Ser Pro Leu Pro His Val Gly Ala Ala Leu Thr Val Thr Thr
420 425 430
His Pro His Ile Ser Ile Lys Ser Glu Pro Val Ser Pro Ser Arg Glu
435 440 445
Arg Ser Pro Ala Pro Pro Pro Ala Val Phe Pro Ala Ala Arg Pro
450 455 460
Glu Pro Gly Asp Gly Leu Ser Ser Pro Ala Gly Gly Ser Tyr Glu Thr
465 470 475 480
Gly Asp Arg Asp Asp Gly Arg Gly Asp Phe Gly Pro Thr Leu Gly Leu
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Met Arg Leu Asp Thr Trp Thr Leu Lys
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cga cag gtg act ttc acc aag cgg aag ttt ggc ctg atg aag aag gcg 96
Arg Gln Val Thr Phe Thr Lys Arg Lys Phe Gly Leu Met Lys Lys Ala
20 25 30
tat gag ctg agc gtg cta tgt gac tgc gag atc gca ctc atc atc ttc 144
Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile Phe
35 40 45
aac cac tcc aac aag ctg ttc cag tac gcc agc acc gac atg gac aag 192
Asn His Ser Asn Lys Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Lys

50	55	60	
gtg ctg ctc aag tac acg gag tac aat gag cca cac gag agc cgc acc			240
Val Leu Leu Lys Tyr Thr Glu Tyr Asn Glu Pro His Glu Ser Arg Thr			
65	70	75	80
aac gcc gac atc atc gag acc ctg agg aag aag ggc ttc aat ggc tgc			288
Asn Ala Asp Ile Ile Glu Thr Leu Arg Lys Lys Gly Phe Asn Gly Cys			
85	90	95	
gac agc ccc gag ccc gac ggg gag gac tgc gaa cag agc ccc ctg			336
Asp Ser Pro Glu Pro Asp Gly Glu Asp Ser Leu Glu Gln Ser Pro Leu			
100	105	110	
ctg gag gac aag tac cga cgc gcc agc gag gag ctc gac ggg ctc ttc			384
Leu Glu Asp Lys Tyr Arg Arg Ala Ser Glu Glu Leu Asp Gly Leu Phe			
115	120	125	
egg cgc tat ggg tca act gtc ccc gcc ccc aac ttt gcc atg cct gtc			432
Arg Arg Tyr Gly Ser Thr Val Pro Ala Pro Asn Phe Ala Met Pro Val			
130	135	140	
acg gtg ccc gtg tcc aat cag agc tca ctg cag ttc agc aat ccc agc			480
Thr Val Pro Val Ser Asn Gln Ser Ser Leu Gln Phe Ser Asn Pro Ser			
145	150	155	160
ggc tcc ctg gtc acc cct tcc ctg gtg aca tca tcc ctc acg gac ccg			528
Gly Ser Leu Val Thr Pro Ser Leu Val Thr Ser Ser Leu Thr Asp Pro			
165	170	175	
cggtc ctc tcc ccc cag cag cca gca cta cag agg aac agt gtg tct			576
Arg Leu Leu Ser Pro Gln Gln Pro Ala Leu Gln Arg Asn Ser Val Ser			
180	185	190	
cct ggc ctg ccc cag cgg cca gct agt gcg ggg gcc atg ctg ggg ggt			624
Pro Gly Leu Pro Gln Arg Pro Ala Ser Ala Gly Ala Met Leu Gly Gly			
195	200	205	
gac ctg aac agt gct aac gga gcc tgc ccc agc cct gtt ggg aat ggc			672
Asp Leu Asn Ser Ala Asn Gly Ala Cys Pro Ser Pro Val Gly Asn Gly			
210	215	220	
tac gtc agt gct cgg gct tcc cct ggc ctc ctc cct gtg gcc aat ggc			720
Tyr Val Ser Ala Arg Ala Ser Pro Gly Leu Leu Pro Val Ala Asn Gly			
225	230	235	240
aac agc cta aac aag gtc atc cct gcc aag tct ccg ccc cca cct acc			768
Asn Ser Leu Asn Lys Val Ile Pro Ala Lys Ser Pro Pro Pro Thr			

245	250	255	
cac agc acc cag ctt gga gcc ccc agc cgc aag ccc gac ctg cga gtc			816
His Ser Thr Gln Leu Gly Ala Pro Ser Arg Lys Pro Asp Leu Arg Val			
260	265	270	
atc act tcc cag gca gga aag ggg tta atg cat cac ttg act gag gac			864
Ile Thr Ser Gln Ala Gly Lys Gly Leu Met His His Leu Thr Glu Asp			
275	280	285	
cat tta gat ctg aac aat gcc cag cgc ctt ggg gtc tcc cag tct act			912
His Leu Asp Leu Asn Asn Ala Gln Arg Leu Gly Val Ser Gln Ser Thr			
290	295	300	
cat tcg ctc acc acc cca gtg gtt tct gtg gca acg ccg agt tta ctc			960
His Ser Leu Thr Thr Pro Val Val Ser Val Ala Thr Pro Ser Leu Leu			
305	310	315	320
agc cag ggc ctc ccc ttc tct tcc atg ccc act gcc tac aac aca gat			1008
Ser Gln Gly Leu Pro Phe Ser Ser Met Pro Thr Ala Tyr Asn Thr Asp			
325	330	335	
tac cag ttg acc agt gca gag ctc tcc tcc tta cca gcc ttt agt tca			1056
Tyr Gln Leu Thr Ser Ala Glu Leu Ser Ser Leu Pro Ala Phe Ser Ser			
340	345	350	
cct ggg ggg ctg cta ggc aat gtc act gcc tgg caa cag cca cag			1104
Pro Gly Gly Leu Ser Leu Gly Asn Val Thr Ala Trp Gln Gln Pro Gln			
355	360	365	
cag ccc cag cag ccg cag cag cca cag cct cca cag cag cag cca ccg			1152
Gln Pro Gln Gln Pro Gln Gln Pro Gln Pro Pro Gln Gln Gln Pro Pro			
370	375	380	
cag cca cag cag cca cag cag cct cag cag ccg caa cag cca			1200
Gln Pro Gln Pro			
385	390	395	400
cct cag caa cag tcc cac ctg gtc cct gta tct ctc agc aac ctc atc			1248
Pro Gln Gln Gln Ser His Leu Val Pro Val Ser Leu Ser Asn Leu Ile			
405	410	415	
ccg ggc agc ccc ctg ccc cac gtg ggt gct gcc ctc aca gtc acc acc			1296
Pro Gly Ser Pro Leu Pro His Val Gly Ala Ala Leu Thr Val Thr Thr			
420	425	430	
cac ccc cac atc agc atc aag tca gaa ccg gtg tcc cca agc cgt gag			1344
His Pro His Ile Ser Ile Lys Ser Glu Pro Val Ser Pro Ser Arg Glu			

435	440	445	
cgc agc cct gcg cct ccc cct cca gct gtg ttc cca gct gcc cgc cct			1392
Arg Ser Pro Ala Pro Pro Pro Ala Val Phe Pro Ala Ala Arg Pro			
450	455	460	
gag cct ggc gat ggt ctc agc agc cca gcc ggg gga tcc tat gag acg			1440
Glu Pro Gly Asp Gly Leu Ser Ser Pro Ala Gly Gly Ser Tyr Glu Thr			
465	470	475	480
gga gac cgg gat gac gga egg ggg gac ttc ggg ccc aca ctg ggc ctg			1488
Gly Asp Arg Asp Asp Gly Arg Gly Asp Phe Gly Pro Thr Leu Gly Leu			
485	490	495	
ctg cgc cca gcc cca gag cct gag gct gag ggc tca gct gtg aag agg			1536
Leu Arg Pro Ala Pro Glu Pro Glu Ala Glu Gly Ser Ala Val Lys Arg			
500	505	510	
atg cgg ctt gat acc tgg aca tta aag			1563
Met Arg Leu Asp Thr Trp Thr Leu Lys			
515	520		
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Gly Tyr Pro Phe Ala			
20	25	30	
Ser Arg Cys Ser His Glu Glu Asn Pro Tyr Phe His Gly Trp Leu Ile			
35	40	45	
Gly His Pro Glu Met Ser Pro Pro Asp Tyr Ser Met Ala Leu Ser Tyr			
50	55	60	
Ser Pro Glu Tyr Ala Ser Gly Ala Ala Gly Leu Asp His Ser His Tyr			
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Gly Gly Val Pro Pro Gly Ala Gly Pro Pro Gly Leu Gly Gly Pro Arg			
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Pro Val Lys Arg Arg Gly Thr Ala Asn Arg Lys Glu Arg Arg Arg Thr			
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Gln Ser Ile Asn Ser Ala Phe Ala Glu Leu Arg Glu Cys Ile Pro Asn			

115	120	125	
Val Pro Ala Asp Thr Lys Leu Ser Lys Ile Lys Thr Leu Arg Leu Ala			
130	135	140	
Thr Ser Tyr Ile Ala Tyr Leu Met Asp Leu Leu Ala Lys Asp Asp Gln			
145	150	155	160
Asn Gly Glu Ala Glu Ala Phe Lys Ala Glu Ile Lys Lys Thr Asp Val			
165	170	175	
Lys Glu Glu Lys Arg Lys Glu Leu Asn Glu Ile Leu Lys Ser Thr			
180	185	190	
Val Ser Ser Asn Asp Lys Lys Thr Lys Gly Arg Thr Gly Trp Pro Gln			
195	200	205	
His Val Trp Ala Leu Glu Leu Lys Gln			
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ggc tac ccg ttc gcc gca gca gca gca gtc gtc gtc gtc gtc gtc	96		
Gly Tyr Pro Phe Ala			
20 25 30			
agc cgc tgc agt cac gag gag aac ccc tat ttc cac ggc tgg ctt att	144		
Ser Arg Cys Ser His Glu Glu Asn Pro Tyr Phe His Gly Trp Leu Ile			
35 40 45			
ggc cac ccg gag atg tcg ccc ccc gac tac agc atg gcc ctg tcc tac	192		
Gly His Pro Glu Met Ser Pro Pro Asp Tyr Ser Met Ala Leu Ser Tyr			
50 55 60			
agt ccc gag tac gcc agc ggt gcc gcg ggc ctg gac cac tcc cat tat	240		
Ser Pro Glu Tyr Ala Ser Gly Ala Ala Gly Leu Asp His Ser His Tyr			
65 70 75 80			

gga gga gtg ccg ccc ggt gcc ggg cct ccc ggc ctg ggg ggg ccg cgc 288
Gly Gly Val Pro Pro Gly Ala Gly Pro Pro Gly Leu Gly Gly Pro Arg
85 90 95
ccg gtg aag cgt cgg ggc acc gcc aac cgc aag gag cgg cgc agg act 336
Pro Val Lys Arg Arg Gly Thr Ala Asn Arg Lys Glu Arg Arg Arg Thr
100 105 110
cag agc atc aac agc gcc ttc gcc gag ctg cgc gag tgc atc ccc aac 384
Gln Ser Ile Asn Ser Ala Phe Ala Glu Leu Arg Glu Cys Ile Pro Asn
115 120 125
gtg ccc gcc gac acc aaa ctc tcc aaa atc aag act ctg cgc ctg gcc 432
Val Pro Ala Asp Thr Lys Leu Ser Lys Ile Lys Thr Leu Arg Leu Ala
130 135 140
acc agc tac atc gcc tac ctc atg gat ctg ctg gcc aag gac gac cag 480
Thr Ser Tyr Ile Ala Tyr Leu Met Asp Leu Leu Ala Lys Asp Asp Gln
145 150 155 160
aac gga gag gcg gag gcc ttc aag gcg gag atc aag aag acc gac gtg 528
Asn Gly Glu Ala Glu Ala Phe Lys Ala Glu Ile Lys Lys Thr Asp Val
165 170 175
aaa gag gag aag agg aag aaa gag ctg aat gaa atc ttg aaa agt aca 576
Lys Glu Glu Lys Arg Lys Glu Leu Asn Glu Ile Leu Lys Ser Thr
180 185 190
gtg agc agc aac gac aag aaa acc aaa ggc cgg aca ggc tgg cca cag 624
Val Ser Ser Asn Asp Lys Lys Thr Lys Gly Arg Thr Gly Trp Pro Gln
195 200 205
cac gtc tgg gcc ctg gag ctc aag cag 651
His Val Trp Ala Leu Glu Leu Lys Gln
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His Pro Ala His Pro Met Leu His Glu Pro Phe Leu Phe Gly Pro Ala
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Ser Arg Cys His Gln Glu Arg Pro Tyr Phe Gln Ser Trp Leu Leu Ser
35 40 45
Pro Ala Asp Ala Ala Pro Asp Phe Pro Ala Gly Gly Pro Pro Pro Ala
50 55 60
Ala Ala Ala Ala Ala Thr Ala Tyr Gly Pro Asp Ala Arg Pro Gly Gln
65 70 75 80
Ser Pro Gly Arg Leu Glu Ala Leu Gly Gly Arg Leu Gly Arg Arg Lys
85 90 95
Gly Ser Gly Pro Lys Lys Glu Arg Arg Arg Thr Glu Ser Ile Asn Ser
100 105 110
Ala Phe Ala Glu Leu Arg Glu Cys Ile Pro Asn Val Pro Ala Asp Thr
115 120 125
Lys Leu Ser Lys Ile Lys Thr Leu Arg Leu Ala Thr Ser Tyr Ile Ala
130 135 140
Tyr Leu Met Asp Val Leu Ala Lys Asp Ala Gln Ser Gly Asp Pro Glu
145 150 155 160
Ala Phe Lys Ala Glu Leu Lys Lys Ala Asp Gly Gly Arg Glu Ser Lys
165 170 175
Arg Lys Arg Glu Leu Gln Gln His Glu Gly Phe Pro Pro Ala Leu Gly
180 185 190
Pro Val Glu Lys Arg Ile Lys Gly Arg Thr Gly Trp Pro Gln Gln Val
195 200 205
Trp Ala Leu Glu Leu Asn Gln
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Met Asn Leu Val Gly Ser Tyr Ala His His His His His His Pro
1 5 10 15
cac cct gcg cac ccc atg ctc cac gaa ccc ttc ctc ttc ggt ccg gcc 96

His Pro Ala His Pro Met Leu His Glu Pro Phe Leu Phe Gly Pro Ala
20 25 30
tcg cgc tgt cat cag gaa agg ccc tac ttc cag agc tgg ctg ctg agc 144
Ser Arg Cys His Gln Glu Arg Pro Tyr Phe Gln Ser Trp Leu Leu Ser
35 40 45
ccg gct gac gct gcc ccg gac ttc cct gcg ggc ggg ccg ccc gcg 192
Pro Ala Asp Ala Ala Pro Asp Phe Pro Ala Gly Gly Pro Pro Pro Ala
50 55 60
gcc gct gca gcc gcc acc gcc tat ggt cct gac gcc agg cct ggg cag 240
Ala Ala Ala Ala Ala Thr Ala Tyr Gly Pro Asp Ala Arg Pro Gly Gln
65 70 75 80
agc ccc ggg cgg ctg gag gcg ctt ggc ggc cgt ctt ggc cgg cgg aaa 288
Ser Pro Gly Arg Leu Glu Ala Leu Gly Gly Arg Leu Gly Arg Arg Lys
85 90 95
ggc tca gga ccc aag aag gag egg aga cgc act gag agc att aac agc 336
Gly Ser Gly Pro Lys Lys Glu Arg Arg Arg Thr Glu Ser Ile Asn Ser
100 105 110
gca ttc gcg gag ttg cgc gag tgc atc ccc aac gtg ccg gcc gac acc 384
Ala Phe Ala Glu Leu Arg Glu Cys Ile Pro Asn Val Pro Ala Asp Thr
115 120 125
aag ctc tcc aag atc aag act ctg cgc cta gcc acc agc tac atc gcc 432
Lys Leu Ser Lys Ile Lys Thr Leu Arg Leu Ala Thr Ser Tyr Ile Ala
130 135 140
tac ctg atg gac gtg ctg gcc aag gat gca cag tct ggc gat ccc gag 480
Tyr Leu Met Asp Val Leu Ala Lys Asp Ala Gln Ser Gly Asp Pro Glu
145 150 155 160
gcc ttc aag gct gaa ctc aag aag gcg gat ggc ggc cgt gag agc aag 528
Ala Phe Lys Ala Glu Leu Lys Lys Ala Asp Gly Gly Arg Glu Ser Lys
165 170 175
cgg aaa agg gag ctg cag cag cac gaa ggt ttt cct cct gcc ctg ggc 576
Arg Lys Arg Glu Leu Gln Gln His Glu Gly Phe Pro Pro Ala Leu Gly
180 185 190
cca gtc gag aag agg att aaa gga cgc acc ggc tgg ccg cag caa gtc 624
Pro Val Glu Lys Arg Ile Lys Gly Arg Thr Gly Trp Pro Gln Gln Val
195 200 205
tgg gcg ctg gag tta aac cag 645

Trp Ala Leu Glu Leu Asn Gln
210 215
<210> 25
<211> 411
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<400> 25

Met Glu Arg Met Ser Asp Ser Ala Asp Lys Pro Ile Asp Asn Asp Ala
1 5 10 15
Glu Gly Val Trp Ser Pro Asp Ile Glu Gln Ser Phe Gln Glu Ala Leu
20 25 30
Ala Ile Tyr Pro Pro Cys Gly Arg Arg Lys Ile Ile Leu Ser Asp Glu
35 40 45
Gly Lys Met Tyr Gly Arg Asn Glu Leu Ile Ala Arg Tyr Ile Lys Leu
50 55 60
Arg Thr Gly Lys Thr Arg Thr Arg Lys Gln Val Ser Ser His Ile Gln
65 70 75 80
Val Leu Ala Arg Arg Lys Ser Arg Asp Phe His Ser Lys Leu Lys Asp
85 90 95
Gln Thr Ala Lys Asp Lys Ala Leu Gln His Met Ala Ala Met Ser Ser
100 105 110
Ala Gln Ile Val Ser Ala Thr Ala Ile His Asn Lys Leu Gly Leu Pro
115 120 125
Gly Ile Pro Arg Pro Thr Phe Pro Gly Ala Pro Gly Phe Trp Pro Gly
130 135 140
Met Ile Gln Thr Gly Gln Pro Gly Ser Ser Gln Asp Val Lys Pro Phe
145 150 155 160
Val Gln Gln Ala Tyr Pro Ile Gln Pro Ala Val Thr Ala Pro Ile Pro
165 170 175
Gly Phe Glu Pro Ala Ser Ala Pro Ala Pro Ser Val Pro Ala Trp Gln
180 185 190
Gly Arg Ser Ile Gly Thr Thr Lys Leu Arg Leu Val Glu Phe Ser Ala
195 200 205
Phe Leu Glu Gln Gln Arg Asp Pro Asp Ser Tyr Asn Lys His Leu Phe
210 215 220
Val His Ile Gly His Ala Asn His Ser Tyr Ser Asp Pro Leu Leu Glu

225 230 235 240
Ser Val Asp Ile Arg Gln Ile Tyr Asp Lys Phe Pro Glu Lys Lys Gly
 245 250 255
Gly Leu Lys Glu Leu Phe Gly Lys Gly Pro Gln Asn Ala Phe Phe Leu
 260 265 270
Val Lys Phe Trp Ala Asp Leu Asn Cys Asn Ile Gln Asp Asp Ala Gly
 275 280 285
Ala Phe Tyr Gly Val Thr Ser Gln Tyr Glu Ser Ser Glu Asn Met Thr
 290 295 300
Val Thr Cys Ser Thr Lys Val Cys Ser Phe Gly Lys Gln Val Val Glu
305 310 315 320
Lys Val Glu Thr Glu Tyr Ala Arg Phe Glu Asn Gly Arg Phe Val Tyr
 325 330 335
Arg Ile Asn Arg Ser Pro Met Cys Glu Tyr Met Ile Asn Phe Ile His
 340 345 350
Lys Leu Lys His Leu Pro Glu Lys Tyr Met Met Asn Ser Val Leu Glu
 355 360 365
Asn Phe Thr Ile Leu Leu Val Val Thr Asn Arg Asp Thr Gln Glu Thr
 370 375 380
Leu Leu Cys Met Ala Cys Val Phe Glu Val Ser Asn Ser Glu His Gly
385 390 395 400
Ala Gln His His Ile Tyr Arg Leu Val Lys Asp
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Met Glu Arg Met Ser Asp Ser Ala Asp Lys Pro Ile Asp Asn Asp Ala
1 5 10 15
gaa ggg gtc tgg agc ccc gac atc gag caa agc ttt cag gag gcc ctg 96
Glu Gly Val Trp Ser Pro Asp Ile Glu Gln Ser Phe Gln Glu Ala Leu

20	25	30	
gct atc tat cca cca tgt ggg agg agg aaa atc atc tta tca gac gaa			144
Ala Ile Tyr Pro Pro Cys Gly Arg Arg Lys Ile Ile Leu Ser Asp Glu			
35	40	45	
ggc aaa atg tat ggt agg aat gaa ttg ata gcc aga tac atc aaa ctc			192
Gly Lys Met Tyr Gly Arg Asn Glu Leu Ile Ala Arg Tyr Ile Lys Leu			
50	55	60	
agg aca ggc aag acg agg acc aga aaa cag gtg tct agt cac att cag			240
Arg Thr Gly Lys Thr Arg Thr Arg Lys Gln Val Ser Ser His Ile Gln			
65	70	75	80
gtt ctt gcc aga agg aaa tct cgt gat ttt cat tcc aag cta aag gat			288
Val Leu Ala Arg Arg Lys Ser Arg Asp Phe His Ser Lys Leu Lys Asp			
85	90	95	
cag act gca aag gat aag gcc ctg cag cac atg gcg gcc atg tcc tca			336
Gln Thr Ala Lys Asp Lys Ala Leu Gln His Met Ala Ala Met Ser Ser			
100	105	110	
gcc cag atc gtc tcg gcc act gcc att cat aac aag ctg ggg ctg cct			384
Ala Gln Ile Val Ser Ala Thr Ala Ile His Asn Lys Leu Gly Leu Pro			
115	120	125	
ggg att cca cgc ccg acc ttc cca ggg gcg ccg ggg ttc tgg ccg gga			432
Gly Ile Pro Arg Pro Thr Phe Pro Gly Ala Pro Gly Phe Trp Pro Gly			
130	135	140	
atg att caa aca ggg cag cca gga tcc tca caa gac gtc aag cct ttt			480
Met Ile Gln Thr Gly Gln Pro Gly Ser Ser Gln Asp Val Lys Pro Phe			
145	150	155	160
gtg cag cag gcc tac ccc atc cag cca gcg gtc aca gcc ccc att cca			528
Val Gln Gln Ala Tyr Pro Ile Gln Pro Ala Val Thr Ala Pro Ile Pro			
165	170	175	
ggg ttt gag cct gca tcg gcc cca gct ccc tca gtc cct gcc tgg caa			576
Gly Phe Glu Pro Ala Ser Ala Pro Ala Ser Val Pro Ala Trp Gln			
180	185	190	
ggt cgc tcc att ggc aca acc aag ctt cgc ctg gtg gaa ttt tca gct			624
Gly Arg Ser Ile Gly Thr Thr Lys Leu Arg Leu Val Glu Phe Ser Ala			
195	200	205	
ttt ctc gag cag cag cga gac cca gac tcg tac aac aaa cac ctc ttc			672
Phe Leu Glu Gln Gln Arg Asp Pro Asp Ser Tyr Asn Lys His Leu Phe			

210	215	220	
gtg cac att ggg cat gcc aac cat tct tac agt gac cca ttg ctt gaa			720
Val His Ile Gly His Ala Asn His Ser Tyr Ser Asp Pro Leu Leu Glu			
225	230	235	240
tca gtg gac att cgt cag att tat gac aaa ttt cct gaa aag aaa ggt			768
Ser Val Asp Ile Arg Gln Ile Tyr Asp Lys Phe Pro Glu Lys Lys Gly			
245	250	255	
ggc tta aag gaa ctg ttt gga aag ggc cct caa aat gcc ttc ttc ctc			816
Gly Leu Lys Glu Leu Phe Gly Lys Gly Pro Gln Asn Ala Phe Phe Leu			
260	265	270	
gta aaa ttc tgg gct gat tta aac tgc aat att caa gat gat gct ggg			864
Val Lys Phe Trp Ala Asp Leu Asn Cys Asn Ile Gln Asp Asp Ala Gly			
275	280	285	
gtt ttt tat ggt gta acc agt cag tac gag agt tct gaa aat atg aca			912
Ala Phe Tyr Gly Val Thr Ser Gln Tyr Glu Ser Ser Glu Asn Met Thr			
290	295	300	
gtc acc tgt tcc acc aaa gtt tgc tcc ttt ggg aag caa gta gta gaa			960
Val Thr Cys Ser Thr Lys Val Cys Ser Phe Gly Lys Gln Val Val Glu			
305	310	315	320
aaa gta gag acg gag tat gca agg ttt gag aat ggc cga ttt gta tac			1008
Lys Val Glu Thr Glu Tyr Ala Arg Phe Glu Asn Gly Arg Phe Val Tyr			
325	330	335	
cga ata aac cgc tcc cca atg tgt gaa tat atg atc aac ttc atc cac			1056
Arg Ile Asn Arg Ser Pro Met Cys Glu Tyr Met Ile Asn Phe Ile His			
340	345	350	
aag ctc aaa cac tta cca gag aaa tat atg atg aac agt gtt ttg gaa			1104
Lys Leu Lys His Leu Pro Glu Lys Tyr Met Met Asn Ser Val Leu Glu			
355	360	365	
aac ttc aca att tta ttg gtg gta aca aac agg gat aca caa gaa act			1152
Asn Phe Thr Ile Leu Leu Val Val Thr Asn Arg Asp Thr Gln Glu Thr			
370	375	380	
cta ctc tgc atg gcc tgt gtg ttt gaa gtt tca aat agt gaa cac gga			1200
Leu Leu Cys Met Ala Cys Val Phe Glu Val Ser Asn Ser Glu His Gly			
385	390	395	400
gca caa cat cat att tac agg ctt gta aag gac			
Ala Gln His His Ile Tyr Arg Leu Val Lys Asp			1233

405 410

<210> 27

<211> 427

<212> PRT

<213> Homo sapiens

<400> 27

Ile Thr Ser Asn Glu Trp Ser Ser Pro Thr Ser Pro Glu Gly Ser Thr
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Ala Ser Gly Gly Ser Gln Ala Leu Asp Lys Pro Ile Asp Asn Asp Ala
20 25 30
Glu Gly Val Trp Ser Pro Asp Ile Glu Gln Ser Phe Gln Glu Ala Leu
35 40 45
Ala Ile Tyr Pro Pro Cys Gly Arg Arg Lys Ile Ile Leu Ser Asp Glu
50 55 60
Gly Lys Met Tyr Gly Arg Asn Glu Leu Ile Ala Arg Tyr Ile Lys Leu
65 70 75 80
Arg Thr Gly Lys Thr Arg Thr Arg Lys Gln Val Ser Ser His Ile Gln
85 90 95
Val Leu Ala Arg Arg Lys Ala Arg Glu Ile Gln Ala Lys Leu Lys Asp
100 105 110
Gln Ala Ala Lys Asp Lys Ala Leu Gln Ser Met Ala Ala Met Ser Ser
115 120 125
Ala Gln Ile Ile Ser Ala Thr Ala Phe His Ser Ser Met Ala Leu Ala
130 135 140
Arg Gly Pro Gly Arg Pro Ala Val Ser Gly Phe Trp Gln Gly Ala Leu
145 150 155 160
Pro Gly Gln Ala Gly Thr Ser His Asp Val Lys Pro Phe Ser Gln Gln
165 170 175
Thr Tyr Ala Val Gln Pro Pro Leu Pro Leu Pro Gly Phe Glu Ser Pro
180 185 190
Ala Gly Pro Ala Pro Ser Pro Ser Ala Pro Pro Ala Pro Pro Trp Gln
195 200 205
Gly Arg Ser Val Ala Ser Ser Lys Leu Trp Met Leu Glu Phe Ser Ala
210 215 220
Phe Leu Glu Gln Gln Gln Asp Pro Asp Thr Tyr Asn Lys His Leu Phe
225 230 235 240

Val His Ile Gly Gln Ser Ser Pro Ser Tyr Ser Asp Pro Tyr Leu Glu
245 250 255
Ala Val Asp Ile Arg Gln Ile Tyr Asp Lys Phe Pro Glu Lys Lys Gly
260 265 270
Gly Leu Lys Asp Leu Phe Glu Arg Gly Pro Ser Asn Ala Phe Phe Leu
275 280 285
Val Lys Phe Trp Ala Asp Leu Asn Thr Asn Ile Glu Asp Glu Gly Ser
290 295 300
Ser Phe Tyr Gly Val Ser Ser Gln Tyr Glu Ser Pro Glu Asn Met Ile
305 310 315 320
Ile Thr Cys Ser Thr Lys Val Cys Ser Phe Gly Lys Gln Val Val Glu
325 330 335
Lys Val Glu Thr Glu Tyr Ala Arg Tyr Glu Asn Gly His Tyr Ser Tyr
340 345 350
Arg Ile His Arg Ser Pro Leu Cys Glu Tyr Met Ile Asn Phe Ile His
355 360 365
Lys Leu Lys His Leu Pro Glu Lys Tyr Met Met Asn Ser Val Leu Glu
370 375 380
Asn Phe Thr Ile Leu Gln Val Val Thr Asn Arg Asp Thr Gln Glu Thr
385 390 395 400
Leu Leu Cys Ile Ala Tyr Val Phe Glu Val Ser Ala Ser Glu His Gly
405 410 415
Ala Gln His His Ile Tyr Arg Leu Val Lys Glu
420 425
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Ile Thr Ser Asn Glu Trp Ser Ser Pro Thr Ser Pro Glu Gly Ser Thr
1 5 10 15
gcc tct ggg ggc agt cag gca ctg gac aag ccc atc gac aat gac gca 96

Ala Ser Gly Gly Ser Gln Ala Leu Asp Lys Pro Ile Asp Asn Asp Ala
 20 25 30
 gag ggc gtg tgg agc ccg gat att gag cag agt ttc cag gag gcc ctc 144
 Glu Gly Val Trp Ser Pro Asp Ile Glu Gln Ser Phe Gln Glu Ala Leu
 35 40 45
 gcc atc tac ccg ccc tgt ggc agg ccg aaa atc atc ctg tcg gac gag 192
 Ala Ile Tyr Pro Pro Cys Gly Arg Arg Lys Ile Ile Leu Ser Asp Glu
 50 55 60
 ggc aag atg tat ggt cgg aac gag ctg att gcc ccg tac atc aag ctc 240
 Gly Lys Met Tyr Gly Arg Asn Glu Leu Ile Ala Arg Tyr Ile Lys Leu
 65 70 75 80
 cgg aca ggg aag acc ccg acc agg aag cag gtc tcc agc cac atc cag 288
 Arg Thr Gly Lys Thr Arg Thr Arg Lys Gln Val Ser Ser His Ile Gln
 85 90 95
 gtg ctg gct cgt ccg aaa gct ccg gag atc cag gcc aag cta aag gac 336
 Val Leu Ala Arg Arg Lys Ala Arg Glu Ile Gln Ala Lys Leu Lys Asp
 100 105 110
 cag gca gct aag gac aag gcc ctg cag agc atg gct gcc atg tcg tct 384
 Gln Ala Ala Lys Asp Lys Ala Leu Gln Ser Met Ala Ala Met Ser Ser
 115 120 125
 gca cag atc atc tcc gcc acg gcc ttc cac agt agc atg gcc ctc gcc 432
 Ala Gln Ile Ile Ser Ala Thr Ala Phe His Ser Ser Met Ala Leu Ala
 130 135 140
 cgg ggc ccc ggc ccg cca gca gtc tca ggg ttt tgg caa gga gct ttg 480
 Arg Gly Pro Gly Arg Pro Ala Val Ser Gly Phe Trp Gln Gly Ala Leu
 145 150 155 160
 cca ggc caa gcc gga acg tcc cat gat gtg aag cct ttc tct cag caa 528
 Pro Gly Gln Ala Gly Thr Ser His Asp Val Lys Pro Phe Ser Gln Gln
 165 170 175
 acc tat gct gtc cag cct ccg ctg cct ctg cca ggg ttt gag tct cct 576
 Thr Tyr Ala Val Gln Pro Pro Leu Pro Leu Pro Gly Phe Glu Ser Pro
 180 185 190
 gca ggg ccc gcc cca tcc ccc tct ccg ccc ccg gca ccc cca tgg cag 624
 Ala Gly Pro Ala Pro Ser Pro Ser Ala Pro Pro Ala Pro Pro Trp Gln
 195 200 205
 ggc ccg agc gtg gcc agc tcc aag ctc tgg atg ttg gag ttc tct gcc 672

Gly Arg Ser Val Ala Ser Ser Lys Leu Trp Met Leu Glu Phe Ser Ala
210 215 220
ttc ctg gag cag cag gac ccg gac aeg tac aac aag cac ctg ttc 720
Phe Leu Glu Gln Gln Gln Asp Pro Asp Thr Tyr Asn Lys His Leu Phe
225 230 235 240
gtg cac att ggc cag tcc agc cca agc tac agc gac ccc tac ctc gaa 768
Val His Ile Gly Gln Ser Ser Pro Ser Tyr Ser Asp Pro Tyr Leu Glu
245 250 255
gcc gtg gac atc cgc caa atc tat gac aaa ttc ccg gag aaa aag ggt 816
Ala Val Asp Ile Arg Gln Ile Tyr Asp Lys Phe Pro Glu Lys Lys Gly
260 265 270
gga ctc aag gat ctc ttc gaa cgg gga ccc tcc aat gcc ttt ttt ctt 864
Gly Leu Lys Asp Leu Phe Glu Arg Gly Pro Ser Asn Ala Phe Phe Leu
275 280 285
gtg aag ttc tgg gca gac ctc aac acc aac atc gag gat gaa ggc agc 912
Val Lys Phe Trp Ala Asp Leu Asn Thr Asn Ile Glu Asp Glu Gly Ser
290 295 300
tcc ttc tat ggg gtc tcc agc cag tat gag agc ccc gag aac atg atc 960
Ser Phe Tyr Gly Val Ser Ser Gln Tyr Glu Ser Pro Glu Asn Met Ile
305 310 315 320
atc acc tgc tcc acg aag gtc tgc tct ttc ggc aag cag gtg gtg gag 1008
Ile Thr Cys Ser Thr Lys Val Cys Ser Phe Gly Lys Gln Val Val Glu
325 330 335
aaa gtt gag aca gag tat gct cgc tat gag aat gga cac tac tct tac 1056
Lys Val Glu Thr Glu Tyr Ala Arg Tyr Glu Asn Gly His Tyr Ser Tyr
340 345 350
cgc atc cac cgg tcc ccg ctc tgt gag tac atg atc aac ttc atc cac 1104
Arg Ile His Arg Ser Pro Leu Cys Glu Tyr Met Ile Asn Phe Ile His
355 360 365
aag ctc aag cac ctc cct gag aag tac atg atg aac agc gtg ctg gag 1152
Lys Leu Lys His Leu Pro Glu Lys Tyr Met Met Asn Ser Val Leu Glu
370 375 380
aac ttc acc atc ctg cag gtg gtc acc aac aga gac aca cag gag acc 1200
Asn Phe Thr Ile Leu Gln Val Val Thr Asn Arg Asp Thr Gln Glu Thr
385 390 395 400
ttg ctg tgc att gcc tat gtc ttt gag gtg tca gcc agt gag cac ggg 1248

Leu Leu Cys Ile Ala Tyr Val Phe Glu Val Ser Ala Ser Glu His Gly
405 410 415

gct cag cac cac atc tac agg ctg gtg aaa gaa 1281
Ala Gln His His Ile Tyr Arg Leu Val Lys Glu
420 425

<210> 29
<211> 435
<212> PRT
<213> Homo sapiens
<400> 29

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Glu Asp Gly Pro Glu Gly Leu Asp Lys Gly Leu Asp Asn Asp Ala Glu
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Gly Val Trp Ser Pro Asp Ile Glu Gln Ser Phe Gln Glu Ala Leu Ala
35 40 45

Ile Tyr Pro Pro Cys Gly Arg Arg Lys Ile Ile Leu Ser Asp Glu Gly
50 55 60

Lys Met Tyr Gly Arg Asn Glu Leu Ile Ala Arg Tyr Ile Lys Leu Arg
65 70 75 80

Thr Gly Lys Thr Arg Thr Arg Lys Gln Val Ser Ser His Ile Gln Val
85 90 95

Leu Ala Arg Lys Lys Val Arg Glu Tyr Gln Val Gly Ile Lys Ala Met
100 105 110

Asn Leu Asp Gln Val Ser Lys Asp Lys Ala Leu Gln Ser Met Ala Ser
115 120 125

Met Ser Ser Ala Gln Ile Val Ser Ala Ser Val Leu Gln Asn Lys Phe
130 135 140

Ser Pro Pro Ser Pro Leu Pro Gln Ala Val Phe Ser Thr Ser Ser Arg
145 150 155 160

Phe Trp Ser Ser Pro Pro Leu Leu Gly Gln Gln Pro Gly Pro Ser Gln
165 170 175

Asp Ile Lys Pro Phe Ala Gln Pro Ala Tyr Pro Ile Gln Pro Pro Leu
180 185 190

Pro Pro Thr Leu Ser Ser Tyr Glu Pro Leu Ala Pro Leu Pro Ser Ala
195 200 205

Ala Ala Ser Val Pro Val Trp Gln Asp Arg Thr Ile Ala Ser Ser Arg
210 215 220
Leu Arg Leu Leu Glu Tyr Ser Ala Phe Met Glu Val Gln Arg Asp Pro
225 230 235 240
Asp Thr Tyr Ser Lys His Leu Phe Val His Ile Gly Gln Thr Asn Pro
245 250 255
Ala Phe Ser Asp Pro Pro Leu Glu Ala Val Asp Val Arg Gln Ile Tyr
260 265 270
Asp Lys Phe Pro Glu Lys Lys Gly Gly Leu Lys Glu Leu Tyr Glu Lys
275 280 285
Gly Pro Pro Asn Ala Phe Phe Leu Val Lys Phe Trp Ala Asp Leu Asn
290 295 300
Ser Thr Ile Gln Glu Gly Pro Gly Ala Phe Tyr Gly Val Ser Ser Gln
305 310 315 320
Tyr Ser Ser Ala Asp Ser Met Thr Ile Ser Val Ser Thr Lys Val Cys
325 330 335
Ser Phe Gly Lys Gln Val Val Glu Lys Val Glu Thr Glu Tyr Ala Arg
340 345 350
Leu Glu Asn Gly Arg Phe Val Tyr Arg Ile His Arg Ser Pro Met Cys
355 360 365
Glu Tyr Met Ile Asn Phe Ile His Lys Leu Lys His Leu Pro Glu Lys
370 375 380
Tyr Met Met Asn Ser Val Leu Glu Asn Phe Thr Ile Leu Gln Val Val
385 390 395 400
Thr Ser Arg Asp Ser Gln Glu Thr Leu Leu Val Ile Ala Phe Val Phe
405 410 415
Glu Val Ser Thr Ser Glu His Ala Gln His His Val Tyr Lys Leu
420 425 430
Val Lys Asp
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<400> 30

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1	5						10					15				
gag	gat	ggg	ccc	gag	ggc	ctg	gac	aag	ggg	ctg	gac	aac	gat	g	96	
Glu	Asp	Gly	Pro	Glu	Gly	Leu	Asp	Lys	Gly	Leu	Asp	Asn	Asp	Ala	Glu	
20						25						30				
ggc	gtg	tgg	agc	ccg	gac	atc	gag	cag	agc	ttc	cag	gag	gcc	ctg	144	
Gly	Val	Trp	Ser	Pro	Asp	Ile	Glu	Gln	Ser	Phe	Gln	Glu	Ala	Leu	Ala	
35						40						45				
atc	tac	ccg	ccc	tgc	ggc	cg	cg	aag	atc	atc	ctg	tca	gac	gag	ggc	192
Ile	Tyr	Pro	Pro	Cys	Gly	Arg	Arg	Lys	Ile	Ile	Leu	Ser	Asp	Glu	Gly	
50						55					60					
aag	atg	tac	ggc	cga	aat	gag	ttg	att	gca	cgc	tat	att	aaa	ctg	agg	240
Lys	Met	Tyr	Gly	Arg	Asn	Glu	Leu	Ile	Ala	Arg	Tyr	Ile	Lys	Leu	Arg	
65						70				75		80				
acg	ggg	aag	act	cg	acg	aga	aaa	cag	gtg	tcc	agc	cac	ata	cag	gtt	288
Thr	Gly	Lys	Thr	Arg	Thr	Arg	Lys	Gln	Val	Ser	Ser	His	Ile	Gln	Val	
85						90				95						
cta	gct	cg	aag	aag	gtg	cg	gag	tac	cag	gtt	ggc	atc	aag	ggc	atg	336
Leu	Ala	Arg	Lys	Lys	Val	Arg	Glu	Tyr	Gln	Val	Gly	Ile	Lys	Ala	Met	
100						105				110						
aac	ctg	gac	cag	gtc	tcc	aag	gac	aaa	gcc	ctt	cag	agc	atg	g	384	
Asn	Leu	Asp	Gln	Val	Ser	Lys	Asp	Lys	Ala	Leu	Gln	Ser	Met	Ala	Ser	
115						120				125						
atg	tcc	tct	gcc	cag	atc	gtc	tct	gcc	agt	gtc	ctg	cag	aac	aag	ttc	432
Met	Ser	Ser	Ala	Gln	Ile	Val	Ser	Ala	Ser	Val	Leu	Gln	Asn	Lys	Phe	
130						135				140						
agc	cca	cct	tcc	cct	ctg	ccc	cag	gcc	gtc	ttc	tcc	act	tcc	tcg	cg	480
Ser	Pro	Pro	Ser	Pro	Leu	Pro	Gln	Ala	Val	Phe	Ser	Thr	Ser	Ser	Arg	
145						150				155		160				
ttc	tgg	agc	agc	ccc	cct	ctc	ctg	gga	cag	cag	cct	gga	ccc	tct	cag	528
Phe	Trp	Ser	Ser	Pro	Pro	Leu	Leu	Gly	Gln	Gln	Pro	Gly	Pro	Ser	Gln	
165						170				175						
gac	atc	aag	ccc	ttt	gca	cag	cca	gcc	tac	ccc	atc	cag	ccg	ccc	ctg	576
Asp	Ile	Lys	Pro	Phe	Ala	Gln	Pro	Ala	Tyr	Pro	Ile	Gln	Pro	Pro	Leu	

180	185	190	
ccg ccg acg ctc agc agt tat gag ccc ctg gcc ccg ctc ccc tca gct			624
Pro Pro Thr Leu Ser Ser Tyr Glu Pro Leu Ala Pro Leu Pro Ser Ala			
195	200	205	
gct gcc tct gtg cct gtg tgg cag gac cgt acc att gcc tcc tcc cgg			672
Ala Ala Ser Val Pro Val Trp Gln Asp Arg Thr Ile Ala Ser Ser Arg			
210	215	220	
ctg cgg ctc ctg gag tat tca gcc ttc atg gag gtg cag cga gac cct			720
Leu Arg Leu Leu Glu Tyr Ser Ala Phe Met Glu Val Gln Arg Asp Pro			
225	230	235	240
gac acg tac agc aaa cac ctg ttt gtg cac atc ggc cag acg aac ccc			768
Asp Thr Tyr Ser Lys His Leu Phe Val His Ile Gly Gln Thr Asn Pro			
245	250	255	
gcc ttc tca gac cca ccc ctg gag gca gta gat gtg cgc cag atc tat			816
Ala Phe Ser Asp Pro Pro Leu Glu Ala Val Asp Val Arg Gln Ile Tyr			
260	265	270	
gac aaa ttc ccc gag aaa aag gga gga ttg aag gag ctc tat gag aag			864
Asp Lys Phe Pro Glu Lys Lys Gly Gly Leu Lys Glu Leu Tyr Glu Lys			
275	280	285	
ggg ccc cct aat gcc ttc ttc ctt gtc aag ttc tgg gcc gac ctc aac			912
Gly Pro Pro Asn Ala Phe Phe Leu Val Lys Phe Trp Ala Asp Leu Asn			
290	295	300	
agc acc atc cag gag ggc ccg gga gcc ttc tat ggg gtc agc tct cag			960
Ser Thr Ile Gln Glu Gly Pro Gly Ala Phe Tyr Gly Val Ser Ser Gln			
305	310	315	320
tac agc tct gct gat agc atg acc atc agc gtc tcc acc aag gtg tgc			1008
Tyr Ser Ser Ala Asp Ser Met Thr Ile Ser Val Ser Thr Lys Val Cys			
325	330	335	
tcc ttt ggc aaa cag gtg gta gag aag gtg gag act gag tat gcc agg			1056
Ser Phe Gly Lys Gln Val Val Glu Lys Val Glu Thr Glu Tyr Ala Arg			
340	345	350	
ctg gag aac ggg cgc ttt gtg tac cgt atc cac cgc tcg ccc atg tgc			1104
Leu Glu Asn Gly Arg Phe Val Tyr Arg Ile His Arg Ser Pro Met Cys			
355	360	365	
gag tac atg atc aac ttc atc cac aag ctg aag cac ctg ccc gag aag			1152
Glu Tyr Met Ile Asn Phe Ile His Lys Leu Lys His Leu Pro Glu Lys			

370	375	380	
tac atg atg aac agc gtg ctg gag aac ttc acc atc ctg cag gtg gtc			1200
Tyr Met Met Asn Ser Val Leu Glu Asn Phe Thr Ile Leu Gln Val Val			
385	390	395	400
acg agc cgg gac tcc cag gag acc ttg ctt gtc att gct ttt gtc ttc			1248
Thr Ser Arg Asp Ser Gln Glu Thr Leu Leu Val Ile Ala Phe Val Phe			
405	410	415	
gaa gtc tcc acc agt gag cac ggg gcc cag cac cat gtc tac aag ctc			1296
Glu Val Ser Thr Ser Glu His Gly Ala Gln His His Val Tyr Lys Leu			
420	425	430	
gtc aaa gac			1305
Val Lys Asp			
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His Tyr Arg Glu Val Leu Pro Leu Ala Thr Phe Val Arg Arg Leu Gly			
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Pro Gln Gly Trp Arg Leu Val Gln Arg Gly Asp Pro Ala Ala Phe Arg			
35	40	45	
Ala Leu Val Ala Gln Cys Leu Val Cys Val Pro Trp Asp Ala Arg Pro			
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Pro Pro Ala Ala Pro Ser Phe Arg Gln Val Ser Cys Leu Lys Glu Leu			
65	70	75	80
Val Ala Arg Val Leu Gln Arg Leu Cys Glu Arg Gly Ala Lys Asn Val			
85	90	95	
Leu Ala Phe Gly Phe Ala Leu Leu Asp Gly Ala Arg Gly Gly Pro Pro			
100	105	110	
Glu Ala Phe Thr Thr Ser Val Arg Ser Tyr Leu Pro Asn Thr Val Thr			
115	120	125	
Asp Ala Leu Arg Gly Ser Gly Ala Trp Gly Leu Leu Leu Arg Arg Val			
130	135	140	

Gly Asp Asp Val Leu Val His Leu Leu Ala Arg Cys Ala Leu Phe Val
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Leu Val Ala Pro Ser Cys Ala Tyr Gln Val Cys Gly Pro Pro Leu Tyr
165 170 175
Gln Leu Gly Ala Ala Thr Gln Ala Arg Pro Pro Pro His Ala Ser Gly
180 185 190
Pro Arg Arg Arg Leu Gly Cys Glu Arg Ala Trp Asn His Ser Val Arg
195 200 205
Glu Ala Gly Val Pro Leu Gly Leu Pro Ala Pro Gly Ala Arg Arg Arg
210 215 220
Gly Gly Ser Ala Ser Arg Ser Leu Pro Leu Pro Lys Arg Pro Arg Arg
225 230 235 240
Gly Ala Ala Pro Glu Pro Glu Arg Thr Pro Val Gly Gln Gly Ser Trp
245 250 255
Ala His Pro Gly Arg Thr Arg Gly Pro Ser Asp Arg Gly Phe Cys Val
260 265 270
Val Ser Pro Ala Arg Pro Ala Glu Glu Ala Thr Ser Leu Glu Gly Ala
275 280 285
Leu Ser Gly Thr Arg His Ser His Pro Ser Val Gly Arg Gln His His
290 295 300
Ala Gly Pro Pro Ser Thr Ser Arg Pro Pro Arg Pro Trp Asp Thr Pro
305 310 315 320
Cys Pro Pro Val Tyr Ala Glu Thr Lys His Phe Leu Tyr Ser Ser Gly
325 330 335
Asp Lys Glu Gln Leu Arg Pro Ser Phe Leu Leu Ser Ser Leu Arg Pro
340 345 350
Ser Leu Thr Gly Ala Arg Arg Leu Val Glu Thr Ile Phe Leu Gly Ser
355 360 365
Arg Pro Trp Met Pro Gly Thr Pro Arg Arg Leu Pro Arg Leu Pro Gln
370 375 380
Arg Tyr Trp Gln Met Arg Pro Leu Phe Leu Glu Leu Leu Gly Asn His
385 390 395 400
Ala Gln Cys Pro Tyr Gly Val Leu Leu Lys Thr His Cys Pro Leu Arg
405 410 415
Ala Ala Val Thr Pro Ala Ala Gly Val Cys Ala Arg Glu Lys Pro Gln
420 425 430

Gly Ser Val Ala Ala Pro Glu Glu Glu Asp Thr Asp Pro Arg Arg Leu
435 440 445
Val Gln Leu Leu Arg Gln His Ser Ser Pro Trp Gln Val Tyr Gly Phe
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Val Arg Ala Cys Leu Arg Arg Leu Val Pro Pro Gly Leu Trp Gly Ser
465 470 475 480
Arg His Asn Glu Arg Arg Phe Leu Arg Asn Thr Lys Lys Phe Ile Ser
485 490 495
Leu Gly Lys His Ala Lys Leu Ser Leu Gln Glu Leu Thr Trp Lys Met
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Ser Val Arg Asp Cys Ala Trp Leu Arg Arg Ser Pro Gly Val Gly Cys
515 520 525
Val Pro Ala Ala Glu His Arg Leu Arg Glu Glu Ile Leu Ala Lys Phe
530 535 540
Leu His Trp Leu Met Ser Val Tyr Val Val Glu Leu Leu Arg Ser Phe
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Phe Tyr Val Thr Glu Thr Phe Gln Lys Asn Arg Leu Phe Phe Tyr
565 570 575
Arg Lys Ser Val Trp Ser Lys Leu Gln Ser Ile Gly Ile Arg Gln His
580 585 590
Leu Lys Arg Val Gln Leu Arg Glu Leu Ser Glu Ala Glu Val Arg Gln
595 600 605
His Arg Glu Ala Arg Pro Ala Leu Leu Thr Ser Arg Leu Arg Phe Ile
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Pro Lys Pro Asp Gly Leu Arg Pro Ile Val Asn Met Asp Tyr Val Val
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Gly Ala Arg Thr Phe Arg Arg Glu Lys Arg Ala Glu Arg Leu Thr Ser
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Pro Gly Leu Leu Gly Ala Ser Val Leu Gly Leu Asp Asp Ile His Arg
675 680 685
Ala Trp Arg Thr Phe Val Leu Arg Val Arg Ala Gln Asp Pro Pro Pro
690 695 700
Glu Leu Tyr Phe Val Lys Val Asp Val Thr Gly Ala Tyr Asp Thr Ile
705 710 715 720

Pro Gln Asp Arg Leu Thr Glu Val Ile Ala Ser Ile Ile Lys Pro Gln
725 730 735
Asn Thr Tyr Cys Val Arg Arg Tyr Ala Val Val Gln Lys Ala Ala His
740 745 750
Gly His Val Arg Lys Ala Phe Lys Ser His Val Ser Thr Leu Thr Asp
755 760 765
Leu Gln Pro Tyr Met Arg Gln Phe Val Ala His Leu Gln Glu Thr Ser
770 775 780
Pro Leu Arg Asp Ala Val Val Ile Glu Gln Ser Ser Ser Leu Asn Glu
785 790 795 800
Ala Ser Ser Gly Leu Phe Asp Val Phe Leu Arg Phe Met Cys His His
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Ala Val Arg Ile Arg Gly Lys Ser Tyr Val Gln Cys Gln Gly Ile Pro
820 825 830
Gln Gly Ser Ile Leu Ser Thr Leu Leu Cys Ser Leu Cys Tyr Gly Asp
835 840 845
Met Glu Asn Lys Leu Phe Ala Gly Ile Arg Arg Asp Gly Leu Leu Leu
850 855 860
Arg Leu Val Asp Asp Phe Leu Leu Val Thr Pro His Leu Thr His Ala
865 870 875 880
Lys Thr Phe Leu Arg Thr Leu Val Arg Gly Val Pro Glu Tyr Gly Cys
885 890 895
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Pro Trp Cys Gly Leu Leu Leu Asp Thr Arg Thr Leu Glu Val Gln Ser
930 935 940
Asp Tyr Ser Ser Tyr Ala Arg Thr Ser Ile Arg Ala Ser Leu Thr Phe
945 950 955 960
Asn Arg Gly Phe Lys Ala Gly Arg Asn Met Arg Arg Lys Leu Phe Gly
965 970 975
Val Leu Arg Leu Lys Cys His Ser Leu Phe Leu Asp Leu Gln Val Asn
980 985 990
Ser Leu Gln Thr Val Cys Thr Asn Ile Tyr Lys Ile Leu Leu Leu Gln
995 1000 1005

Ala Tyr Arg Phe His Ala Cys Val Leu Gln Leu Pro Phe His Gln Gln
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Val Trp Lys Asn Pro Thr Phe Phe Leu Arg Val Ile Ser Asp Thr Ala
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Ser Leu Cys Tyr Ser Ile Leu Lys Ala Lys Asn Ala Gly Met Ser Leu
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Gly Ala Lys Gly Ala Ala Gly Pro Leu Pro Ser Glu Ala Val Gln Trp
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Leu Cys His Gln Ala Phe Leu Leu Lys Leu Thr Arg His Arg Val Thr
1075 1080 1085
Tyr Val Pro Leu Leu Gly Ser Leu Arg Thr Ala Gln Thr Gln Leu Ser
1090 1095 1100
Arg Lys Leu Pro Gly Thr Thr Leu Thr Ala Leu Glu Ala Ala Asn
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cac tac cgc gag gtg ctg ccc ctg gcc acg ttc gtg cgg cgc ctg ggg 96
His Tyr Arg Glu Val Leu Pro Leu Ala Thr Phe Val Arg Arg Leu Gly
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ccc cag ggc tgg cgg ctg gtg cag cgc ggg gac ccg gcg gct ttc cgc 144
Pro Gln Gly Trp Arg Leu Val Gln Arg Gly Asp Pro Ala Ala Phe Arg
35 40 45
gcg ctg gtg gcc cag tgc ctg gtg tgc gtg ccc tgg gac gca cgg ccg 192
Ala Leu Val Ala Gln Cys Leu Val Cys Val Pro Trp Asp Ala Arg Pro
50 55 60

ccc ccc gcc ccc tcc ttc cgc cag gtg tcc tgc ctg aag gag ctg 240
Pro Pro Ala Ala Pro Ser Phe Arg Gln Val Ser Cys Leu Lys Glu Leu
65 70 75 80
gtg gcc cga gtg ctg cag agg ctg tgc gag cgc ggc gcg aag aac gtg 288
Val Ala Arg Val Leu Gln Arg Leu Cys Glu Arg Gly Ala Lys Asn Val
85 90 95
ctg gcc ttc ggc ttc gcg ctg ctg gac ggg gcc cgc ggg ggc ccc ccc 336
Leu Ala Phe Gly Phe Ala Leu Leu Asp Gly Ala Arg Gly Gly Pro Pro
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gag gcc ttc acc acc agc gtg cgc agc tac ctg ccc aac acg gtg acc 384
Glu Ala Phe Thr Thr Ser Val Arg Ser Tyr Leu Pro Asn Thr Val Thr
115 120 125
gac gca ctg cgg ggg agc egg gcg tgg ggg ctg ctg cgc cgc gtg 432
Asp Ala Leu Arg Gly Ser Gly Ala Trp Gly Leu Leu Leu Arg Arg Val
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ggc gac gac gtg ctg gtt cac ctg ctg gca cgc tgc gcg ctc ttt gtg 480
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Leu Val Ala Pro Ser Cys Ala Tyr Gln Val Cys Gly Pro Pro Leu Tyr
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Gln Leu Gly Ala Ala Thr Gln Ala Arg Pro Pro His Ala Ser Gly
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ccc cga agg cgt ctg gga tgc gaa cgg gcc tgg aac cat agc gtc agg 624
Pro Arg Arg Arg Leu Gly Cys Glu Arg Ala Trp Asn His Ser Val Arg
195 200 205
gag gcc ggg gtc ccc ctg egg ctg cca gcc ccc ggt gcg agg agg cgc 672
Glu Ala Gly Val Pro Leu Gly Leu Pro Ala Pro Gly Ala Arg Arg Arg
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Gly Gly Ser Ala Ser Arg Ser Leu Pro Leu Pro Lys Arg Pro Arg Arg
225 230 235 240
ggc gct gcc cct gag cgg gag cgg acg ccc gtt egg cag ggg tcc tgg 768
Gly Ala Ala Pro Glu Pro Glu Arg Thr Pro Val Gly Gln Gly Ser Trp
245 250 255

gcc cac ccg ggc agg acg cgt gga ccg agt gac cgt ggt ttc tgt gtg	816
Ala His Pro Gly Arg Thr Arg Gly Pro Ser Asp Arg Gly Phe Cys Val	
260 265 270	
gtg tca cct gcc aga ccc gcc gaa gaa gcc acc tct ttg gag ggt gcg	864
Val Ser Pro Ala Arg Pro Ala Glu Glu Ala Thr Ser Leu Glu Gly Ala	
275 280 285	
ctc tct ggc acg cgc cac tcc cac cca tcc gtg ggc cgc cag cac cac	912
Leu Ser Gly Thr Arg His Ser His Pro Ser Val Gly Arg Gln His His	
290 295 300	
gcg ggc ccc cca tcc aca tcg egg cca cca cgt ccc tgg gac acg cct	960
Ala Gly Pro Pro Ser Thr Ser Arg Pro Pro Arg Pro Trp Asp Thr Pro	
305 310 315 320	
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Cys Pro Pro Val Tyr Ala Glu Thr Lys His Phe Leu Tyr Ser Ser Gly	
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gac aag gag cag ctg cgg ccc tcc ttc cta ctc agc tct ctg agg ccc	1056
Asp Lys Glu Gln Leu Arg Pro Ser Phe Leu Leu Ser Ser Leu Arg Pro	
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agc ctg act ggc gct cgg agg ctc gtg gag acc atc ttt ctg ggt tcc	1104
Ser Leu Thr Gly Ala Arg Arg Leu Val Glu Thr Ile Phe Leu Gly Ser	
355 360 365	
agg ccc tgg atg cca ggg act ccc cgc agg ttg ccc cgc ctg ccc cag	1152
Arg Pro Trp Met Pro Gly Thr Pro Arg Arg Leu Pro Arg Leu Pro Gln	
370 375 380	
cgc tac tgg caa atg cgg ccc ctg ttt ctg gag ctg ctt ggg aac cac	1200
Arg Tyr Trp Gln Met Arg Pro Leu Phe Leu Glu Leu Leu Gly Asn His	
385 390 395 400	
gcg cag tgc ccc tac ggg gtg ctc ctc aag acg cac tgc ccg ctg cga	1248
Ala Gln Cys Pro Tyr Gly Val Leu Leu Lys Thr His Cys Pro Leu Arg	
405 410 415	
gct gcg gtc acc cca gca gcc ggt gtc tgt gcc cgg gag aag ccc cag	1296
Ala Ala Val Thr Pro Ala Ala Gly Val Cys Ala Arg Glu Lys Pro Gln	
420 425 430	
ggc tct gtg gcg gcc ccc gag gag gag gac aca gac ccc cgt cgc ctg	1344
Gly Ser Val Ala Ala Pro Glu Glu Asp Thr Asp Pro Arg Arg Leu	
435 440 445	

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Val Gln Leu Leu Arg Gln His Ser Ser Pro Trp Gln Val Tyr Gly Phe	
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Val Arg Ala Cys Leu Arg Arg Leu Val Pro Pro Gly Leu Trp Gly Ser	
465 470 475 480	
agg cac aac gaa cgc cgc ttc ctc agg aac acc aag aag ttc atc tcc	1488
Arg His Asn Glu Arg Arg Phe Leu Arg Asn Thr Lys Lys Phe Ile Ser	
485 490 495	
ctg ggg aag eat gcc aag ctc tgg ctg cag gag ctg acg tgg aag atg	1536
Leu Gly Lys His Ala Lys Leu Ser Leu Gln Glu Leu Thr Trp Lys Met	
500 505 510	
agc gtg cgg gac tgc gct tgg ctg cgc agg agc cca ggg gtt ggc tgt	1584
Ser Val Arg Asp Cys Ala Trp Leu Arg Arg Ser Pro Gly Val Gly Cys	
515 520 525	
gtt ccg gcc gca gag cac cgt ctg cgt gag gag atc ctg gcc aag ttc	1632
Val Pro Ala Ala Glu His Arg Leu Arg Glu Glu Ile Leu Ala Lys Phe	
530 535 540	
ctg cac tgg ctg atg agt gtg tac gtc gtc gag ctg ctc agg tct ttc	1680
Leu His Trp Leu Met Ser Val Tyr Val Val Glu Leu Leu Arg Ser Phe	
545 550 555 560	
ttt tat gtc acg gag acc acg ttt caa aag aac agg ctc ttt ttc tac	1728
Phe Tyr Val Thr Glu Thr Phe Gln Lys Asn Arg Leu Phe Phe Tyr	
565 570 575	
cgg aag agt gtc tgg agc aag ttg caa agc att gga atc aga cag cac	1776
Arg Lys Ser Val Trp Ser Lys Leu Gln Ser Ile Gly Ile Arg Gln His	
580 585 590	
ttg aag agg gtg cag ctg cgg gag ctg tcg gaa gca gag gtc agg cag	1824
Leu Lys Arg Val Gln Leu Arg Glu Leu Ser Glu Ala Glu Val Arg Gln	
595 600 605	
cat cgg gaa gcc agg ccc gcc ctg ctg acg tcc aga ctc cgc ttc atc	1872
His Arg Glu Ala Arg Pro Ala Leu Leu Thr Ser Arg Leu Arg Phe Ile	
610 615 620	
ccc aag cct gac ggg ctg cgg ccg att gtg aac atg gac tac gtc gtg	1920
Pro Lys Pro Asp Gly Leu Arg Pro Ile Val Asn Met Asp Tyr Val Val	
625 630 635 640	

gga gcc aga acg ttc cgc aga gaa aag agg gcc gag cgt ctc acc tcc			1968
Gly Ala Arg Thr Phe Arg Arg Glu Lys Arg Ala Glu Arg Leu Thr Ser			
645	650	655	
agg gtg aag gca ctg ttc agc gtg ctc aac tac gag cgg gcg cgg cgc			2016
Arg Val Lys Ala Leu Phe Ser Val Leu Asn Tyr Glu Arg Ala Arg Arg			
660	665	670	
ccc ggc ctc ctg ggc gcc tct gtg ctg ggc ctg gac gat atc cac agg			2064
Pro Gly Leu Leu Gly Ala Ser Val Leu Gly Leu Asp Asp Ile His Arg			
675	680	685	
gcc tgg cgc acc ttc gtg ctg cgt gtg cgg gcc cag gac ccg ccg cct			2112
Ala Trp Arg Thr Phe Val Leu Arg Val Arg Ala Gln Asp Pro Pro Pro			
690	695	700	
gag ctg tac ttt gtc aag gtg gat gtg acg ggc gcg tac gac acc atc			2160
Glu Leu Tyr Phe Val Lys Val Asp Val Thr Gly Ala Tyr Asp Thr Ile			
705	710	715	720
ccc cag gac agg ctc acg gag gtc atc gcc agc atc atc aaa ccc cag			2208
Pro Gln Asp Arg Leu Thr Glu Val Ile Ala Ser Ile Ile Lys Pro Gln			
725	730	735	
aac acg tac tgc gtg cgt cgg tat gcc gtg gtc cag aag gcc gcc cat			2256
Asn Thr Tyr Cys Val Arg Arg Tyr Ala Val Val Gln Lys Ala Ala His			
740	745	750	
ggg cac gtc cgc aag gcc ttc aag agc cac gtc tct acc ttg aca gac			2304
Gly His Val Arg Lys Ala Phe Lys Ser His Val Ser Thr Leu Thr Asp			
755	760	765	
ctc cag ccg tac atg cga cag ttc gtg gct cac ctg cag gag acc agc			2352
Leu Gln Pro Tyr Met Arg Gln Phe Val Ala His Leu Gln Glu Thr Ser			
770	775	780	
ccg ctg agg gat gcc gtc gtc atc gag cag agc tcc tcc ctg aat gag			2400
Pro Leu Arg Asp Ala Val Val Ile Glu Gln Ser Ser Ser Leu Asn Glu			
785	790	795	800
gcc agc agt ggc ctc ttc gac gtc ttc cta cgc ttc atg tgc cac cac			2448
Ala Ser Ser Gly Leu Phe Asp Val Phe Leu Arg Phe Met Cys His His			
805	810	815	
gcc gtg cgc atc agg ggc aag tcc tac gtc cag tgc cag ggg atc ccg			2496
Ala Val Arg Ile Arg Gly Lys Ser Tyr Val Gln Cys Gln Gly Ile Pro			
820	825	830	

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Gln Gly Ser Ile Leu Ser Thr Leu Leu Cys Ser Leu Cys Tyr Gly Asp
835 840 845
atg gag aac aag ctg ttt gcg ggg att cgg cgg gac ggg ctg ctc ctg 2592
Met Glu Asn Lys Leu Phe Ala Gly Ile Arg Arg Asp Gly Leu Leu Leu
850 855 860
cgt ttg gtg gat gat ttc ttg ttg gtg aca cct cac ctc acc cac gcg 2640
Arg Leu Val Asp Asp Phe Leu Leu Val Thr Pro His Leu Thr His Ala
865 870 875 880
aaa acc ttc ctc agg acc ctg gtc cga ggt gtc cct gag tat ggc tgc 2688
Lys Thr Phe Leu Arg Thr Leu Val Arg Gly Val Pro Glu Tyr Gly Cys
885 890 895
gtg gtg aac ttg cgg aag aca gtg gtg aac ttc cct gta gaa gac gag 2736
Val Val Asn Leu Arg Lys Thr Val Val Asn Phe Pro Val Glu Asp Glu
900 905 910
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Ala Leu Gly Gly Thr Ala Phe Val Gln Met Pro Ala His Gly Leu Phe
915 920 925
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Pro Trp Cys Gly Leu Leu Asp Thr Arg Thr Leu Glu Val Gln Ser
930 935 940
gac tac tcc agc tat gcc cgg acc tcc atc aga gcc agt ctc acc ttc 2880
Asp Tyr Ser Ser Tyr Ala Arg Thr Ser Ile Arg Ala Ser Leu Thr Phe
945 950 955 960
aac cgc ggc ttc aag gct ggg agg aac atg cgt cgc aaa ctc ttt ggg 2928
Asn Arg Gly Phe Lys Ala Gly Arg Asn Met Arg Arg Lys Leu Phe Gly
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Val Leu Arg Leu Lys Cys His Ser Leu Phe Leu Asp Leu Gln Val Asn
980 985 990
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995 1000 1005
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Ala Tyr Arg Phe His Ala Cys Val Leu Gln Leu Pro Phe His Gln Gln
1010 1015 1020

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tcc ctc tgc tac tcc atc ctg aaa gcc aag aac gca ggg atg tgg ctg 3168
Ser Leu Cys Tyr Ser Ile Leu Lys Ala Lys Asn Ala Gly Met Ser Leu
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ggg gcc aag ggc gcc ggc ggc cct ctg ccc tcc gag gcc gtg cag tgg 3216
Gly Ala Lys Gly Ala Ala Gly Pro Leu Pro Ser Glu Ala Val Gln Trp
1060 1065 1070
ctg tgc cac caa gca ttc ctg ctc aag ctg act cga cac cgt gtc acc 3264
Leu Cys His Gln Ala Phe Leu Leu Lys Leu Thr Arg His Arg Val Thr
1075 1080 1085
tac gtg cca ctc ctg ggg tca ctc agg aca gcc cag acg cag ctg agt 3312
Tyr Val Pro Leu Leu Gly Ser Leu Arg Thr Ala Gln Thr Gln Leu Ser
1090 1095 1100
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Arg Lys Leu Pro Gly Thr Thr Leu Thr Ala Leu Glu Ala Ala Ala Asn
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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence

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<210> 35

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 35

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<210> 36

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<212> DNA

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<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 36

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<210> 37

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<223> Description of Artificial Sequence: artificially synthesized primer sequence

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<212> DNA

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<223> Description of Artificial Sequence: artificially synthesized primer sequence

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22

<210> 39

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<212> DNA

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<223> Description of Artificial Sequence: artificially synthesized primer sequence

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<210> 40

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<212> DNA

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<400> 40

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24

<210> 41

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<212> DNA

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<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 41

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19

<210> 42

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<400> 43
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<400> 44
acaatgactg atgagagatg 20
<210> 45
<211> 18
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 45
cagacctgaa ggagacct 18
<210> 46
<211> 18
<212> DNA
<213> Artificial Sequence
<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 46
gtcagcgtaa acagttgc 18
<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 47
gccaaagaagg ggatagaagg 20
<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 48
ctgtggttca gggctcagtc 20
<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 49
cagtggagct ggacaaagcc 20
<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence
<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 50
tagcgacgg tctggAACCA 20
<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 51
ctgtcatctc actatggcA 20
<210> 52
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 52
ccaagtccga gcagggAAATT 20
<210> 53
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 53
aagacgtcaa gccctttgtg 20
<210> 54
<211> 20
<212> DNA
<213> Artificial Sequence
<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 54
aaaggagcac actttgggtgg 20
<210> 55
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 55
agcaagaata cgatgccatc 20
<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 56
gaaggggtgg tggtacggtc 20
<210> 57
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially synthesized primer sequence
<400> 57
tggaaatggc tatgtcagt 20
<210> 58
<211> 20
<212> DNA
<213> Artificial Sequence
<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 58

ctggtaatct gtgtttagg

20

<210> 59

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 59

caaggccctc tccaaacttg

20

<210> 60

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized primer sequence

<400> 60

gccccagaga cagcattcca

20

<210> 61

<211> 268

<212> PRT

<213> Homo sapiens

<400> 61

Met Ala Gln Pro Leu Cys Pro Pro Leu Ser Glu Ser Trp Met Leu Ser

1

5

10

15

Ala Ala Trp Gly Pro Thr Arg Arg Pro Pro Pro Ser Asp Lys Asp Cys

20

25

30

Gly Arg Ser Leu Val Ser Ser Pro Asp Ser Trp Gly Ser Thr Pro Ala

35

40

45

Asp Ser Pro Val Ala Ser Pro Ala Arg Pro Gly Thr Leu Arg Asp Pro
50 55 60

Arg Ala Pro Ser Val Gly Arg Arg Gly Ala Arg Ser Ser Arg Leu Gly
65 70 75 80

Ser Gly Gln Arg Gln Ser Ala Ser Glu Arg Glu Lys Leu Arg Met Arg
85 90 95

Thr Leu Ala Arg Ala Leu His Glu Leu Arg Arg Phe Leu Pro Pro Ser
100 105 110

Val Ala Pro Ala Gly Gln Ser Leu Thr Lys Ile Glu Thr Leu Arg Leu
115 120 125

Ala Ile Arg Tyr Ile Gly His Leu Ser Ala Val Leu Gly Leu Ser Glu
130 135 140

Glu Ser Leu Gln Arg Arg Cys Arg Gln Arg Gly Asp Ala Gly Ser Pro
145 150 155 160

Arg Gly Cys Pro Leu Cys Pro Asp Asp Cys Pro Ala Gln Met Gln Thr
165 170 175

Arg Thr Gln Ala Glu Gly Gln Gly Arg Gly Leu Gly Leu Val
180 185 190

Ser Ala Val Arg Ala Gly Ala Ser Trp Gly Ser Pro Pro Ala Cys Pro
195 200 205

Gly Ala Arg Ala Ala Pro Glu Pro Arg Asp Pro Pro Ala Leu Phe Ala
210 215 220

Glu Ala Ala Cys Pro Glu Gly Gln Ala Met Glu Pro Ser Pro Pro Ser
225 230 235 240

Pro Leu Leu Pro Gly Asp Val Leu Ala Leu Leu Glu Thr Trp Met Pro
245 250 255

Leu Ser Pro Leu Glu Trp Leu Pro Glu Glu Pro Lys
260 265

<210> 62

<211> 804

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(807)

<400> 62

atg gcc cag ccc ctg tgc ccg ccg ctc tcc gag tcc tgg atg etc tct 48
Met Ala Gln Pro Leu Cys Pro Pro Leu Ser Glu Ser Trp Met Leu Ser
1 5 10 15

gcg gcc tgg ggc cca act cgg cgg ccg ccc tcc gac aag gac tgc 96
Ala Ala Trp Gly Pro Thr Arg Arg Pro Pro Pro Ser Asp Lys Asp Cys
20 25 30

ggc cgc tcc ctc gtc tcc cca gac tca tgg ggc agc acc cca gcc 144
Gly Arg Ser Leu Val Ser Ser Pro Asp Ser Trp Gly Ser Thr Pro Ala
35 40 45

gac agc ccc gtg gcg agc ccc gcg cca ggc acc ctc cgg gac ccc 192
Asp Ser Pro Val Ala Ser Pro Ala Arg Pro Gly Thr Leu Arg Asp Pro
50 55 60

cgc gcc ccc tcc gta ggt agg cgc ggc gcg cgc agc agc cgc ctg ggc 240
Arg Ala Pro Ser Val Gly Arg Arg Gly Ala Arg Ser Ser Arg Leu Gly
65 70 75 80

agc ggg cag agg cag agc agt gag cgg gag aaa ctg cgc atg cgc 288
Ser Gly Gln Arg Gln Ser Ala Ser Glu Arg Glu Lys Leu Arg Met Arg
85 90 95

acg	ctg	gcc	cgc	gcc	ctg	cac	gag	ctg	cgc	cgc	ttt	cta	ccg	ccg	tcc	336
Thr	Leu	Ala	Arg	Ala	Leu	His	Glu	Leu	Arg	Arg	Phe	Leu	Pro	Pro	Ser	
100								105							110	
gtg	gct	ccc	gct	ggc	cag	agc	ctg	acc	aag	atc	gag	acg	ctg	cgc	ctg	384
Val	Ala	Pro	Ala	Gly	Gln	Ser	Leu	Thr	Lys	Ile	Glu	Thr	Leu	Arg	Leu	
115								120							125	
gtt	atc	cgc	tat	atc	ggc	cac	ctg	tgc	gcc	gtg	cta	ggc	ctc	agc	gag	432
Ala	Ile	Arg	Tyr	Ile	Gly	His	Leu	Ser	Ala	Val	Leu	Gly	Leu	Ser	Glu	
130							135								140	
gag	agt	ctc	cag	cgc	cgg	tgc	cgg	cag	cgc	gtt	gac	gct	ggg	tcc	cct	480
Glu	Ser	Leu	Gln	Arg	Arg	Cys	Arg	Gln	Arg	Gly	Asp	Ala	Gly	Ser	Pro	
145							150				155				160	
cggt	ggc	tgc	ccg	ctg	tgc	ccc	gac	gac	tgc	ccc	gct	cag	atg	cag	aca	528
Arg	Gly	Cys	Pro	Leu	Cys	Pro	Asp	Asp	Asp	Cys	Pro	Ala	Gln	Met	Gln	Thr
165							170								175	
cgg	acg	cag	gct	gag	ggg	cag	ggg	cag	ggg	cgc	ggg	ctg	ggc	ctg	gta	576
Arg	Thr	Gln	Ala	Glu	Gly	Gln	Gly	Gln	Gly	Arg	Gly	Leu	Gly	Leu	Val	
180							185								190	
tcc	gcc	gtc	cgc	gcc	ggg	gct	tcc	tgg	gga	tcc	ccg	cct	gcc	tgc	ccc	624
Ser	Ala	Val	Arg	Ala	Gly	Ala	Ser	Trp	Gly	Ser	Pro	Pro	Ala	Cys	Pro	
195							200								205	
gga	gcc	cga	gct	gca	ccc	gag	ccg	cgc	gac	ccg	cct	gct	ctg	tcc	gcc	672
Gly	Ala	Arg	Ala	Ala	Pro	Glu	Pro	Arg	Asp	Pro	Pro	Ala	Leu	Phe	Ala	
210							215								220	
gag	gct	gct	gct	gca	ccc	gag	ccg	cgc	gac	ccg	cct	gct	ctg	tcc	gcc	720
Glu	Ala	Ala	Cys	Pro	Glu	Gly	Gln	Ala	Met	Glu	Pro	Ser	Pro	Pro	Ser	
225							230				235				240	

ccg ctc ctt ccg ggc gac gtg ctg gct ctg ttg gag acc tgg atg ccc 768
Pro Leu Leu Pro Gly Asp Val Leu Ala Leu Leu Glu Thr Trp Met Pro
245 250 255

ctc tcg cct ctg gag tgg ctg cct gag gag ccc aag 804
Leu Ser Pro Leu Glu Trp Leu Pro Glu Glu Pro Lys.
260 265

<210> 63
<211> 215
<212> PRT
<213> Homo sapiens
<400> 63

Met Gly Ser Pro Arg Ser Ala Leu Ser Cys Leu Leu Leu His Leu Leu
1 5 10 15

Val Leu Cys Leu Gln Ala Gln Val Thr Val Gln Ser Ser Pro Asn Phe
20 25 30

Thr Gln His Val Arg Glu Gln Ser Leu Val Thr Asp Gln Leu Ser Arg
35 40 45

Arg Leu Ile Arg Thr Tyr Gln Leu Tyr Ser Arg Thr Ser Gly Lys His
50 55 60

Val Gln Val Leu Ala Asn Lys Arg Ile Asn Ala Met Ala Glu Asp Gly
65 70 75 80

Asp Pro Phe Ala Lys Leu Ile Val Glu Thr Asp Thr Phe Gly Ser Arg
85 90 95

Val Arg Val Arg Gly Ala Glu Thr Gly Leu Tyr Ile Cys Met Asn Lys
100 105 110

Lys Gly Lys Leu Ile Ala Lys Ser Asn Gly Lys Gly Lys Asp Cys Val
115 120 125

Phe Thr Glu Ile Val Leu Glu Asn Asn Tyr Thr Ala Leu Gln Asn Ala
130 135 140

Lys Tyr Glu Gly Trp Tyr Met Ala Phe Thr Arg Lys Gly Arg Pro Arg
145 150 155 160

Lys Gly Ser Lys Thr Arg Gln His Gln Arg Glu Val His Phe Met Lys
165 170 175

Arg Leu Pro Arg Gly His His Thr Thr Glu Gln Ser Leu Arg Phe Glu
180 185 190

Phe Leu Asn Tyr Pro Pro Phe Thr Arg Ser Leu Arg Gly Ser Gln Arg
195 200 205

Thr Trp Ala Pro Glu Pro Arg
210

<210> 64

<211> 645

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(648)

<400> 64

atg ggc agc ccc cgc tcc gcg ctg agc tgc ctg ctg ttg cac ttg ctg 48
Met Gly Ser Pro Arg Ser Ala Leu Ser Cys Leu Leu Leu His Leu Leu
1 5 10 15

gtc ctc tgc ctc caa gcc cag gta act gtt cag tcc tca cct aat ttt 96
Val Leu Cys Leu Gln Ala Gln Val Thr Val Gln Ser Ser Pro Asn Phe
20 25 30

aca cag cat gtg agg gag cag agc ctg gtg acg gat cag ctc agc cgc 144

Thr Gln His Val Arg Glu Gln Ser Leu Val Thr Asp Gln Leu Ser Arg
35 40 45 192

cgc ctc atc cgg acc tac caa ctc tac agc cgc acc agc ggg aag cac
Arg Leu Ile Arg Thr Tyr Gln Leu Tyr Ser Arg Thr Ser Gly Lys His
50 55 60

gtg cag gtc ctg gcc aac aag cgc atc aac gcc atg gca gag gac ggc 240
Val Gln Val Leu Ala Asn Lys Arg Ile Asn Ala Met Ala Glu Asp Gly
65 70 75 80

gac ccc ttc gca aag etc atc gtg gag acg gac acc ttt gga agc aga 288
Asp Pro Phe Ala Lys Leu Ile Val Glu Thr Asp Thr Phe Gly Ser Arg
85 90 95

gtt cga gtc cga gga gcc gag acg ggc ctc tac atc tgc atg aac aag 336
Val Arg Val Arg Gly Ala Glu Thr Gly Leu Tyr Ile Cys Met Asn Lys
100 105 110

aag ggg aag ctg atc gcc aag agc aac ggc aaa ggc aag gac tgc gtc 384
Lys Gly Lys Leu Ile Ala Lys Ser Asn Gly Lys Asp Cys Val
115 120 125

ttc acg gag att gtg ctg gag aac aac tac aca gcg ctg cag aat gcc 432
Phe Thr Glu Ile Val Leu Glu Asn Asn Tyr Thr Ala Leu Gln Asn Ala
130 135 140

aag tac gag ggc tgg tac atg gcc ttc acc cgc aag ggc cgg ccc cgc 480
Lys Tyr Glu Gly Trp Tyr Met Ala Phe Thr Arg Lys Gly Arg Pro Arg
145 150 155 160

aag ggc tcc aag acg cgg cag cac cag cgt gag gtc cac ttc atg aag 528
Lys Gly Ser Lys Thr Arg Gln His Gln Arg Glu Val His Phe Met Lys
165 170 175

cgg ctg ccc cgg ggc cac cac acc acc gag cag agc ctg egc ttc gag 576

Arg Leu Pro Arg Gly His His Thr Thr Glu Gln Ser Leu Arg Phe Glu
180 185 190

ttc ctc aac tac ccg ccc ttc acg cgc agc ctg cgc ggc agc cag agg 624
Phe Leu Asn Tyr Pro Pro Phe Thr Arg Ser Leu Arg Gly Ser Gln Arg
195 200 205

act tgg gcc ccg gaa ccc cga 645
Thr Trp Ala Pro Glu Pro Arg
210 215

<210> 65

<211> 212

<212> PRT

<213> Homo sapiens

<400> 65

Met Asp Tyr Leu Leu Met Ile Phe Ser Leu Leu Phe Val Ala Cys Gln
1 5 10 15

Gly Ala Pro Glu Thr Ala Val Leu Gly Ala Glu Leu Ser Ala Val Gly
20 25 30

Glu Asn Gly Gly Glu Lys Pro Thr Pro Ser Pro Pro Trp Arg Leu Arg
35 40 45

Arg Ser Lys Arg Cys Ser Cys Ser Ser Leu Met Asp Lys Glu Cys Val
50 55 60

Tyr Phe Cys His Leu Asp Ile Ile Trp Val Asn Thr Pro Glu His Val
65 70 75 80

Val Pro Tyr Gly Leu Gly Ser Pro Arg Ser Lys Arg Ala Leu Glu Asn
85 90 95

Leu Leu Pro Thr Lys Ala Thr Asp Arg Glu Asn Arg Cys Gln Cys Ala
100 105 110

Ser Gln Lys Asp Lys Lys Cys Trp Asn Phe Cys Gln Ala Gly Lys Glu
115 120 125

Leu Arg Ala Glu Asp Ile Met Glu Lys Asp Trp Asn Asn His Lys Lys
130 135 140

Gly Lys Asp Cys Ser Lys Leu Gly Lys Lys Cys Ile Tyr Gln Gln Leu
145 150 155 160

Val Arg Gly Arg Lys Ile Arg Arg Ser Ser Glu Glu His Leu Arg Gln
165 170 175

Thr Arg Ser Glu Thr Met Arg Asn Ser Val Lys Ser Ser Phe His Asp
180 185 190

Pro Lys Leu Lys Gly Lys Pro Ser Arg Glu Arg Tyr Val Thr His Asn
195 200 205

Arg Ala His Trp
210

<210> 66

<211> 636

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(639)

<400> 66

atg gat tat ttg ctc atg att ttc tct ctg ctg ttt gtg gct tgc caa 48
Met Asp Tyr Leu Leu Met Ile Phe Ser Leu Leu Phe Val Ala Cys Gln
1 5 10 15

gga gct cca gaa aca gca gtc tta ggc gct gag ctc agc gcg gtg ggt 96
Gly Ala Pro Glu Thr Ala Val Leu Gly Ala Glu Leu Ser Ala Val Gly
20 25 30

gag aac ggc ggg gag aaa ccc act ccc agt cca ccc tgg cgg ctc cgc 144
Glu Asn Gly Gly Glu Lys Pro Thr Pro Ser Pro Pro Trp Arg Leu Arg
35 40 45

cgg tcc aag cgc tgc tcc tgc tcg tcc ctg atg gat aaa gag tgt gtc 192
Arg Ser Lys Arg Cys Ser Cys Ser Ser Leu Met Asp Lys Glu Cys Val
50 55 60

tac ttc tgc cac ctg gac atc att tgg gtc aac act ccc gag cac gtt 240
Tyr Phe Cys His Leu Asp Ile Ile Trp Val Asn Thr Pro Glu His Val
65 70 75 80

gtt ccg tat gga ctt gga agc cct agg tcc aag aga gcc ttg gag aat 288
Val Pro Tyr Gly Leu Gly Ser Pro Arg Ser Lys Arg Ala Leu Glu Asn
85 90 95

tta ctt ccc aca aag gca aca gac cgt gag aat aga tgc caa tgt gct 336
Leu Leu Pro Thr Lys Ala Thr Asp Arg Glu Asn Arg Cys Gln Cys Ala
100 105 110

agc caa aaa gac aag aag tgc tgg aat ttt tgc caa gca gga aaa gaa 384
Ser Gln Lys Asp Lys Cys Trp Asn Phe Cys Gln Ala Gly Lys Glu
115 120 125

ctc agg gct gaa gac att atg gag aaa gac tgg aat aat cat aag aaa 432
Leu Arg Ala Glu Asp Ile Met Glu Lys Asp Trp Asn Asn His Lys Lys
130 135 140

gga aaa gac tgt tcc aag ctt ggg aaa aag tgt att tat cag cag tta 480
Gly Lys Asp Cys Ser Lys Leu Gly Lys Lys Cys Ile Tyr Gln Gln Leu
145 150 155 160

gtg aga gga aga aaa atc aga aga agt tca gag gaa cac cta aga caa 528
Val Arg Gly Arg Lys Ile Arg Arg Ser Ser Glu Glu His Leu Arg Gln
165 170 175

acc agg tcg gag acc atg aga aac aac agc gtc aaa tca tct ttt cat gat 576
Thr Arg Ser Glu Thr Met Arg Asn Ser Val Lys Ser Ser Phe His Asp
180 185 190

ccc aag ctg aaa ggc aag ccc tcc aga gag cgt tat gtg acc cac aac 624
Pro Lys Leu Lys Gly Lys Pro Ser Arg Glu Arg Tyr Val Thr His Asn
195 200 205

cga gca cat tgg 636
Arg Ala His Trp
210
<210> 67
<211> 143
<212> PRT
<213> Homo sapiens
<400> 67
Met Gln His Arg Gly Phe Leu Leu Leu Thr Leu Leu Ala Leu Leu Ala
1 5 10 15

Leu Thr Ser Ala Val Ala Lys Lys Lys Asp Lys Val Lys Lys Gly Gly
20 25 30

Pro Gly Ser Glu Cys Ala Glu Trp Ala Trp Gly Pro Cys Thr Pro Ser
35 40 45

Ser Lys Asp Cys Gly Val Gly Phe Arg Glu Gly Thr Cys Gly Ala Gln
50 55 60

Thr Gln Arg Ile Arg Cys Arg Val Pro Cys Asn Trp Lys Lys Glu Phe
65 70 75 80

Gly Ala Asp Cys Lys Tyr Lys Phe Glu Asn Trp Gly Ala Cys Asp Gly
85 90 95

Gly Thr Gly Thr Lys Val Arg Gln Gly Thr Leu Lys Lys Ala Arg Tyr
100 105 110

Asn Ala Gln Cys Gln Glu Thr Ile Arg Val Thr Lys Pro Cys Thr Pro
115 120 125

Lys Thr Lys Ala Lys Ala Lys Lys Gly Lys Gly Lys Asp
130 135 140

<210> 68

<211> 429

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(432)

<400> 68

atg cag cac cga ggc ttc ctc ctc acc ctc ctc gcc ctg ctg gcg 48
Met Gln His Arg Gly Phe Leu Leu Leu Thr Leu Leu Ala Leu Leu Ala
1 5 10 15

ctc acc tcc gcg gtc gcc aaa aag aaa gat aag gtg aag aag ggc ggc 96
Leu Thr Ser Ala Val Ala Lys Lys Asp Lys Val Lys Lys Gly Gly
20 25 30

ccg ggg agc gag tgc gct gag tgg gcc tgg ggg ccc tgc acc ccc agc 144
Pro Gly Ser Glu Cys Ala Glu Trp Ala Trp Gly Pro Cys Thr Pro Ser
35 40 45

agc aag gat tgc ggc gtg ggt ttc cgc gag ggc acc tgc ggg gcc cag 192
Ser Lys Asp Cys Gly Val Gly Phe Arg Glu Gly Thr Cys Gly Ala Gln
50 55 60

acc cag cgc atc cgg tgc agg gtg ccc tgc aac tgg aag aag gag ttt 240
Thr Gln Arg Ile Arg Cys Arg Val Pro Cys Asn Trp Lys Lys Glu Phe
65 70 75 80

gga gcc gac tgc aag tac aag ttt gag aac tgg ggt gcg tgt gat ggg 288
Gly Ala Asp Cys Lys Tyr Lys Phe Glu Asn Trp Gly Ala Cys Asp Gly

85

90

95

ggc aca ggc acc aaa gtc cgc caa ggc acc ctg aag aag gcg cgc tac 336
Gly Thr Gly Thr Lys Val Arg Gln Gly Thr Leu Lys Lys Ala Arg Tyr
100 105 110

aat get cag tgc cag gag acc atc cgc gtc acc aag ccc tgc acc ccc 384
Asn Ala Gln Cys Gln Glu Thr Ile Arg Val Thr Lys Pro Cys Thr Pro
115 120 125

aag acc aaa gca aag gcc aaa gcc aag aaa ggg aag gga aag gac 429
Lys Thr Lys Ala Lys Ala Lys Lys Lys Gly Lys Gly Lys Asp
130 135 140

<210> 69

<211> 408

<212> PRT

<213> Homo sapiens

<400> 69

Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1 5 10 15

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
20 25 30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
35 40 45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
50 55 60

Phe Gly Leu Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65 70 75 80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu
85 90 95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
100 105 110

Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
115 120 125

Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
130 135 140

Ser Ser Ile Pro Glu Asn Glu Ala Ile Ser Ser Ala Glu Leu Arg Leu
145 150 155 160

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
165 170 175

Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
180 185 190

Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
195 200 205

Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro Ala Val Leu Arg Trp
210 215 220

Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225 230 235 240

Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
245 250 255

Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
260 265 270

Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
275 280 285

Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys
290 295 300

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val
305 310 315 320

Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr
325 330 335

Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr
340 345 350

Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile
355 360 365

Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
370 375 380

Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met
385 390 395 400

Val Val Glu Gly Cys Gly Cys Arg
405

<210> 70

<211> 1224

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<223> (1)..(1227)

<400> 70

atg att cct ggt aac cga atg ctg atg gtc gtt tta tta tgc caa gtc 48
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1 5 10 15

ctg cta gga ggc gcg agc cat gct agt ttg ata cct gag acg ggg aag 96

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
20 25 30 144

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
35 40 45 144

cag agc cat gag ctc ctg cgg gac ttc gag gcg aca ctt ctg cag atg 192
Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
50 55 60 192

ttt ggg ctg cgc cgc cgc cgg cct agc aag agt gcc gtc att ccg 240
Phe Gly Leu Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65 70 75 80 240

gac tac atg cgg gat ctt tac cgg ctt cag tct ggg gag gag gag gaa 288
Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu
85 90 95 288

gag cag atc cac agc act ggt ctt gag tat cct gag cgc ccg gcc agc 336
Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
100 105 110 336

cgg gcc aac acc gtg agg agc ttc cac cac gaa gaa cat ctg gag aac 384
Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
115 120 125 384

atc cca ggg acc agt gaa aac tct gct ttt cgt ttc ctc ttt aac ctc 432
Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
130 135 140 432

agc agc atc cct gag aac gag gcg atc tcc tct gca gag ctt cgg ctc 480
Ser Ser Ile Pro Glu Asn Glu Ala Ile Ser Ser Ala Glu Leu Arg Leu
145 150 155 160 480

ttc cgg gag cag gtg gac cag ggc cct gat tgg gaa agg ggc ttc cac 528

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
165 170 175

cgt ata aac att tat gag gtt atg aag ccc cca gca gaa gtg gtg cct 576
Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
180 185 190

ggg cac ctc atc aca cga cta ctg gac aeg aga ctg gtc cac cac aat 624
Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
195 200 205

gtg aca cgg tgg gaa act ttt gat gtg agc cct gcg gtc ctt cgc tgg 672
Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro Ala Val Leu Arg Trp
210 215 220

acc cgg gag aag cag cca aac tat ggg cta gcc att gag gtg act cac 720
Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225 230 235 240

ctc cat cag act cgg acc cac cag ggc cag cat gtc agg att agc cga 768
Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
245 250 255

tcg tta cct caa ggg agt ggg aat tgg gcc cag ctc cgg ccc ctc ctg 816
Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
260 265 270

gtc acc ttt ggc cat gat ggc cgg cag cat gcc ttg acc cga cgc cgg 864
Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
275 280 285

agg gcc aag cgt agc cct aag cat cac tca cag cgg gcc agg aag aag 912
Arg Ala Lys Arg Ser Pro Lys His Ser Gln Arg Ala Arg Lys Lys
290 295 300

aat aag aac tgc cgg cgc cac tgc tat gtg gac ttc agc gat gtg 960

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val			
305	310	315	320
ggc tgg aat gac tgg att gtg gcc cca cca ggc tac cag gcc ttc tac			1008
Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr			
325	330	335	
tgc cat ggg gac tgc ccc ttt cca ctg gct gac cac ctc aac tca acc			1056
Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr			
340	345	350	
aac cat gcc att gtg cag acc ctg gtc aat tct gtc aat tcc agt atc			1104
Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile			
355	360	365	
ccc aaa gcc tgt tgt gtg ccc act gaa ctg agt gcc atc tcc atg ctg			1152
Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu			
370	375	380	
tac ctg gat gag tat gat aag gtg gta ctg aaa aat tat cag gag atg			1200
Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met			
385	390	395	400
gta gta gag gga tgt ggg tgc cgc			1224
Val Val Glu Gly Cys Gly Cys Arg			
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19